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ABSTRACT

Highlighting the significant reading gains of 9-year-old students and, to a lesser extent, 13-year-old students, this report presents the results of three assessments surveying the reading skills of American 9-, 13-, and 17-year-old students during the 1970-71, 1974-75, and 1979-80 school years. The first chapter is introductory in nature, providing descriptions of the data base, measurement design, and terminology. The second, third, and fourth chapters present, respectively, national results for each age group. Within each of these chapters, results are presented also according to sex, race, region, parental education, and type and size of community. The fifth chapter presents performance results of racial groups by region and national results by "achievement class," a background variable used to examine national results within ranges of achievement. The sixth chapter considers the educational significance of the findings, putting the results in context. Appendixes contain (1) tables of summary results for the nation and reporting groups in three assessments; (2) tables of the results on exercises administered to 9- and 13-year-old students, 13- and 17-year-old students, and 9-, 13-, and 17-year-old students; and (3) exhibits for grade levels and size-of-community groups on all exercises administered in the three reading assessments. (RL) Results (Change) (Selective)

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THREE NATIONAL ASSESSMENTS OF READING: CHANGES IN PERFORMANCE, 1970-80

Report No. 11-R-01

by the
National Assessment of Educational Progress

Education Commission of the States
Suite 700, 1860 Lincoln Street
Denver, Colorado 80295

April 1981

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FOREWORD

When the U.S. Office of Education was chartered in 1867, one charge to its commissioners was to determine the nation's progress in education. The National Assessment of Educational Progress (NAEP) was initiated a century later to address, in a systematic way, that charge.

Since 1969, the National Assessment has gathered information about levels of educational achievement across the country and reported its findings to the nation. It has surveyed the attainments of 9-year-olds, 13-year-olds, 17-year-olds and sometimes adults in art, career and occupational development, citizenship, literature, mathematics, music, reading, science, social studies and writing. All areas have been periodically reassessed in order to detect any important changes. To date, National Assessment has interviewed and tested nearly 1,000,000 young Americans.

Learning-area assessments evolve from a consensus process. Each assessment is the product of several years of work by a great many educators, scholars and lay persons from all over the nation. Initially, these people design objectives for each subject area, proposing general goals they feel Americans should be achieving in the course of their education. After careful review, these objectives are given to writers, whose task it is to create exercises (items) appropriate to the objectives.

When the exercises have passed extensive reviews by subject-area specialists, measurement experts and lay persons, they are administered to probability samples. These samples are selected in such a way that the results of their assessment can be generalized to an entire national population. That is, on the basis of the performance of about 2,500 9-year-olds on a given exercise, we can make generalizations about the probable performance of all 9-year-olds in the nation.

After assessment data have been collected, scored and analyzed, the National Assessment publishes reports and disseminates the results as widely as possible. Not all exercises are released for publication. Because NAEP will readminister some of the same exercises in the future to determine whether the performance levels of Americans have increased, remained stable or decreased, it is essential that they not be released in order to preserve the integrity of the study.

ACKNOWLEDGMENTS

Assessing reading performance of young Americans throughout the nation is an undertaking of major proportions. Certainly it could not have become a reality without substantial contributions by many people, not the least of whom are the students, teachers and administrators who cooperated so generously.

The preparation of the objectives and exercises in reading was handled by Science Reading Associates, Chicago, and Educational Testing Service, Princeton.

Dozens of consultants — both subject-area specialists and lay persons — reviewed the materials used in the three reading assessments under the general guidance of the National Assessment of Educational Progress (NAEP) staff. Administration of exercises was handled by the Research Triangle Institute. Scoring and processing were performed by the Measurement Research Center (now Westinghouse DataScore Systems), Iowa City, Iowa.

Our gratitude is extended to the Reading/Literature Advisory Committee and other reading experts who participated in an interpretive conference on the results obtained in the three reading assessments. The staff at NAEP appreciates the insights provided by these distinguished education and subject-area specialists as we attempted to provide a perspective for the assessment findings. These individuals are listed below.

The actual preparation of this report was a collaborative effort of the National Assessment staff. Special thanks must be given to Suzie Sullivan and Gwen Edwards for data processing support; Ava Powell for technical support; Marci Reser and Carmen Nietes for production; and Kay Barrow for technical planning and analysis. The report was written by Barbara Holmes.

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HIGHLIGHTS OF THE RESULTS

Results of three reading assessments indicate that significant gains by 9-year-olds, first observed between the 1971 and 1975 assessments, continued into the third reading assessment. Performance of 13- and 17-year-olds remained relatively stable from the first to the third assessment, with 13-year-olds gaining slightly in literal comprehension while 17-year-olds declined slightly in inferential comprehension.

- Nationally, 9-year-olds' overall reading performance level rose 3.9%. They made significant gains in reference skills (4.8%), literal comprehension (3.9%) and inferential comprehension (3.5%).
- The largest gains among 9-year-olds' reporting groups occurred for black students (9.9%), students who reside in the Southeast (7.5%), those who attend schools in rural communities (6.0%) and those who attend schools in disadvantaged-urban communities (5.2%).
- Nationally, 13-year-olds registered a significant increase in performance in literal comprehension from the first to the third assessment.
- The only significant overall gain among the 13-year-olds' reporting groups occurred for black students (4.2%).
- Nationally, the performance level of 17-year-olds declined significantly (2.1%) in inferential comprehension.
- Three groups at each age — students in the Southeast, blacks and males — narrowed the gap between them and the nation, although they continue to perform below the national level.

CHAPTER 1

INTRODUCTION

The National Assessment of Educational Progress (NAEP) surveyed the reading skills of American students during the 1970-71, 1974-75 and 1979-80 school years. This report presents the results of those three assessments. In each assessment, 9-, 13- and 17-year-olds (age levels that mark the end of primary, intermediate and secondary education) were administered exercises (items) designed to measure their achievement of certain reading objectives. The second and third assessments included exercises from the first in order to determine changes in students' performance over time. The results obtained from three administrations of these exercises are the subject of this report. In order to reflect current trends and emphases in reading and literature, results from additional exercises, included only in the 1979-80 assessment, will be presented in later reports.

Description of Data Base

Students in the National Assessment sample are chosen through a multistage probability sampling design so they represent the national population. Therefore, on the basis of the performance of about 2,500 9-year-olds on a given exercise, we can generalize (or infer) about the probable achievement of all 9-year-olds in the nation. Performance is reported in terms of the percentages of young persons correctly answering a given exercise.

The results presented in this report are based on data collected from national samples of three age populations enrolled in school at three points in time. The age populations were assessed at the following times:

9-year-olds	Jan.-Feb. 1971, 1975 and 1980
13-year-olds	Oct.-Dec. 1970, 1974 and 1979
17-year-olds	March-May 1971, 1975 and 1980

In each assessment, booklets of exercises were administered to samples of students. The booklets, which require approximately 45 minutes to complete, were administered by a trained professional field staff using paced, audio tapes to assure uniform assessment conditions.

Measuring Change in Performance

For the summary measures reported, the estimated average percentage of success is calculated by summing the percentage of correct responses on each exercise and dividing the total by the number of exercises selected for the summary. Throughout this report, changes in performance are based on identical sets of exercises administered to the same age population in the three reading assessments.

Changes in the performance of an entire age population — all 9-year-olds, all 13-year-olds or all 17-year-olds — are indicated by changes in the percentages of young people correctly answering an exercise or a group of exercises. Changes in the performance of certain groups of students — for example, males, females, Southeasterners, and so on — are indicated by changes in the percentage of success for a group and by changes in the group's position compared with the national percentage of success. By observing these two changes we can determine, first, whether a larger or smaller proportion of respondents answered an exercise correctly in one assessment than in another; and se-

cond, whether or not there was a change between assessments in the group's standing compared with the nation as a whole. Both types of information contribute to an understanding of whether the performance level of a given group has changed.

National Assessment computes standard errors that estimate the sampling error and other random error associated with the assessment of a specific item. NAEP has adhered to the standard convention whereby differences between statistics are designated as statistically significant only if the differences are at least twice as large as their standard errors. Differences this large would occur by chance in fewer than 5% of all possible replications of the sampling, data collection and scoring procedures for any particular age group or reporting group. Changes that are statistically significant are denoted by an asterisk (*) in the tables.

When summarizing more general trends across age populations or reporting groups, it is important to consider overall patterns as well as statistical significance. If, for example, an age population or group shows a consistent pattern of decline or increase on particular sets of exercises, the results may be noteworthy even if single changes are not statistically significant. Readers must often decide for themselves how important particular changes or differences are. Statistical conventions can aid, but not replace, good judgment.

Group Definitions

National Assessment, unlike most testing programs, does not report scores for individuals.[1] In addition to national results for the three age groups, NAEP provides results for *groups* of respondents. Respondents are classified by sex, race, region of the country, level of parents' education, grade, community size and community type, and achievement class. Definitions of these groups are presented below.

Age — National results are presented for 9-, 13- and 17-year-olds enrolled in school[2] at the time of the assessment.

Sex — Results are presented for males and females.

Race — Results are presented for black students and white students. Hispanic students are included with white students for all reporting groups involving race in this report, but data for Hispanic students will be included in a later report on the results of the 1979-80 assessment.

Region — Results are presented for the Northeastern, Southeastern, Central and Western regions shown on the following map.

Parental education — Results are presented for three levels of parental education: (1) those whose parents have not graduated from high school, (2) those who have at least one parent who has graduated from high school and (3) those who have at least one parent who has had some post high school education.

[1] Those particularly interested in the reading assessments should consult the *Procedural Handbook: 1979-80 Reading/Literature Assessment* (forthcoming).

[2] The reading assessments gathered data on both in- and out-of-school 17-year-olds, but, for the sake of comparability with data for other age levels, only in-school data are reported here. For readers interested in data for both groups of 17-year-olds, these may be ordered from the National Assessment of Educational Progress.

Type of community

Three extreme community types of special interest are defined by an occupational profile of the area served by a school, as well as by the size of the community in which the school is located.

Advantaged urban. Students in this group attend schools in or around cities having a population greater than 200,000 and where a high proportion of the residents are in professional or managerial employment.

Disadvantaged urban. Students in this group attend schools in or around cities having a population greater than 200,000 and where a relatively high proportion of the residents are on welfare or are not regularly employed.

Rural. Students in this group attend schools in areas with a population under 10,000 and where many of the residents are farmers or farm workers.

This is the only reporting category that excludes a large number of respondents. About two-thirds do not fall into the classifications listed above. Results for the remaining two-thirds are not reported, since their performance is similar to that of the nation.

Size of community

Big cities. Students in this group attend schools within the city limits of cities having a 1970 census population over 200,000.

Fringes around big cities. Students in this group attend schools within metropolitan areas (1970 U.S. Bureau of the Census urbanized areas) served by cities having a population greater than 200,000 but outside the city limits.

Medium cities. Students in this group attend schools in cities having a population between 25,000 and 200,000, not classified in the fringes-around-big-cities category.

Small places. Students in this group attend schools in communities having a population less than 25,000 not classified in the fringes-around-big-cities category.

Grade in school

Results are presented in four ranges of achievement or performance.

Achievement class 1. The lowest one-fourth of the national sample.

Achievement class 2. The middle lowest one-fourth of the national sample.

Achievement class 3. The middle highest one-fourth of the national sample.

Achievement class 4. The highest one-fourth of the national sample.

In reporting group data, the following abbreviations have been used on tables and graphs:

N	=	Nation
M	=	Males
F	=	Females
B	=	Blacks
W	=	Whites
SE	=	Southeast
NE	=	Northeast
C	=	Central
W	=	West
NG	=	Parents have not graduated from high school
GH	=	At least one parent has graduated from high school

PH	=	At least one parent has had some post high school education
AU	=	Advantaged urban
DU	=	Disadvantaged urban
R	=	Rural

While the performance differences reported here may point to areas of concern, readers are cautioned not to ascribe these differences in performance levels to membership in the particular group described by the label. Any number of socioeconomic, school-related and environmental factors contribute to performance on tests, and since no single factor adequately describes an entire group, care must be taken not to overgeneralize based on these data.

The Reading Objectives

Exercises for the first reading assessment were designed to measure students' performance on five reading objectives formulated, reviewed and selected by a cross-section of scholars, educators and lay persons. The five reading objectives concern students' abilities to comprehend, analyze, use, reason logically from and make judgments about what they have read. This arrangement of behaviors represents a logical progression of steps students should be able to take as a result of their reading experiences and instruction. A sixth reading objective, for which exercises were not developed in the first assessment, concerns attitudes toward and interest in reading.[3]

After the first assessment, half of the exercises were released for use by the public.[4] The remaining exercises were clustered by National Assessment staff and reading specialists into three categories: literal comprehension, inferential comprehension and reference skills. The distribution of exercises by cateory for each age level is exhibited in Table 1.

The first category, literal comprehension, includes exercises that require locating or remembering the exact meaning of a word, sentence or paragraph. Often, students have to recognize or identify a single fact, incident or idea presented in the reading material. Using the conventions of written language as aids, readers may adapt their rate of reading to the purpose and nature of the material. Whereas some readers may scan in order to locate specific information, others may skim for an overall impression or read thoroughly for maximum comprehension.

The second category, inferential comprehension, requires gleaning from a passage some idea that is not explicitly stated. In inferential comprehension, readers use the explicit information

[3]For a complete statement of the evolution and development of the reading objectives, refer to the National Assessment publications, *Reading Objectives* (1970); *Reading Objectives, Second Assessment* (1974); and *Reading and Literature Objectives, 1979-80 Assessment* (1980).

[4]See *The First Assessment of Reading, 1970-71 Assessment, Released Exercise Set* (1973, replaced 1979).

TABLE 1. Number of Exercises Included Within Each Summary Measure for Each Age Group in Three Reading Assessments

	Literal Comprehension	Inferential Comprehension	Reference Skills
Age 9	20§	27	8
Age 13	38	24	9
Age 17	35	25	11

§The 1970-71 assessment comprised 19 exercises; 9-year-olds were administered three additional exercises not included in any of the summary measures.

along with their personal experiences and thinking abilities to make predictions, form generalizations, reach conclusions, make comparisons, form judgments and create new ideas.

Reference skills are specialized skills that enable students to apply their reading behaviors to solve problems. There are four basic reference skills: (1) reference skills that enable the student to find the correct resource for needed information, (2) locational skills that aid the student in finding an answer in the resource, (3) interpretational skills that are needed for the student to correctly interpret the located information and (4) organizational skills that enable the student to efficiently organize information for later use.

These categories — literal comprehension, inferential comprehension and reference skills — are not meant to represent a hierarchy of subskills or to suggest a sequence by which reading is taught or learned. Rather, they represent a crude but useful way of organizing assessment items in terms of the measurement focus of each.

Organization of This Report

Subsequent chapters in this report are organized by age level. Chapter 2 presents national results for 9-year-olds; Chapter 3, 13-year-olds; and Chapter 4, results for 17-year-olds. Within each of these chapters, results are presented also for the reporting groups used by National Assessment. Chapter 5 presents performance results of racial groups by region and national results by achievement class. Achievement class is a background variable used to examine national results within ranges of achievement. Members of the Reading/Literature Advisory Committee and other reading experts met in Denver with National Assessment staff to review early drafts of this report and to consider the educational significance of the findings. Chapter 6, developed from this meeting, provides a context for the results presented in this report.

Appendix A contains tables of summary results for the nation and reporting groups in three assessments. Appendix B contains tables of the results on exercises administered to 9- and 13-year-olds, 13- and 17-year-olds, and 9-, 13- and 17-year-olds. Appendix C contains exhibits for grade levels and size-of-community groups on all exercises administered in the three reading assessments.

CHAPTER 2

THE READING PERFORMANCE OF 9-YEAR-OLDS: NATIONAL AND GROUP RESULTS

National Results

The results of the third national assessment of 9-year-olds' reading performance confirm many of the positive trends noted from the first to the second assessment in *Reading in America* (1976).

Table 2 presents the national mean percentages of correct responses for 9-year-olds and shows the changes in mean percentages over nine years. Also shown in the table are the national mean percentages of correct responses with the changes for the three categories of reading exercises: literal comprehension, inferential comprehension and reference skills.

The increase in the change in percentages of 9-year-olds responding correctly to reading exercises from the first to the third assessment has more than tripled.

TABLE 2. National Mean Percentages and Changes in Correct Responses for 9-Year-Olds in Three Reading Assessments#

	Years			Changes		
	1971	1975	1980	1971-75	1975-80	1971-80
Total reading exercises (57)	64.0%	65.2%	67.9%	1.3*	2.6*	3.9*
Literal comprehension§	65.7	66.8	69.6	1.0	2.8*	3.9*
Inferential comprehension	60.5	61.4	63.9	0.9	2.5*	3.5*
Reference skills	64.8	67.0	69.6	2.3*	2.6*	4.8*

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*
§There were 58 exercises in the second and third assessments, and 9-year-olds were administered three additional exercises designed to measure grammar and sentence-ordering skills.

Note: Appendix A contains tables displaying the national and group mean percentages and changes in mean percentages for the three reading assessments. Data displayed in these tables are the basis of all tables and exhibits included in the body of this report.

The pattern of changes in performance for 9-year-olds was quite similar whether in literal or inferential comprehension or in reference skills.

The following three exercises are examples of literal and inferential comprehension and reference skills exercises administered in each of the three assessments. Results on each of these exercises illustrate the substantial increases in performance over nine years by the 9-year-olds nationally, the largest increase occurring in reference skills, and the next largest occurring in literal comprehension.

The following exercise is one of those designed to measure students' literal comprehension ability

Willy the Worm

Read the story and answer the question which follows it.

Willy the worm crawled inside the big red apple. Soon he began to eat the apple. Later, all the teacher could find was Willy.

What is this story about?

	Percent of Correct Responses 1971	1975	1980
○ *A sad boy*			
○ *A snowstorm*			
○ *A new school*			
● *A hungry worm*	*82.6*	*86.8*	*88.9*
○ *I don't know.*			

The next exercise is one of those designed to measure students' ability to make inferences from a reading passage. The correct response to the exercise is implicit, rather than explicit.

The Troposphere

Read the passage and complete the sentence which follows it.

*The first and most important of the atmosphere's four layers is the troposphere, which lies closest to earth. Next above is the stratosphere. Where the troposphere ends and the stratosphere begins is a boundary called the tropopause. Its distance from the earth averages 5 miles near the poles and 11 miles above the equator. The stratosphere goes up to about 50 miles. Above this is the ionosphere, extending out to about 650 miles. Here are ionized, or electrified, particles that reflect long radio waves back to earth. Finally, above the ionosphere is the exosphere, about which little is known.**

This passage is probably from

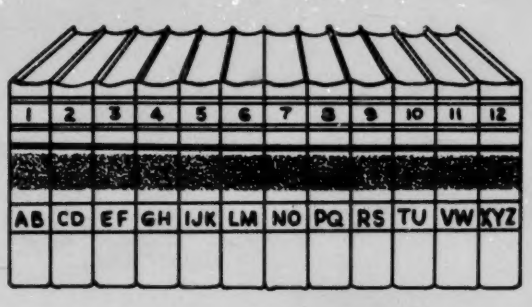
	Percent of Correct Responses 1971	1975	1980
○ *an arithmetic book.*			
○ *an English book.*			
○ *a history book.*			
● *a science book.*	*72.7*	*71.8*	*77.1*
○ *I don't know.*			

**From WEATHER by Paul E. Lehr, R. Will Burnett and Herbert S. Zim, © 1975, 1965, 1957 by Western Publishing Company, Inc. Used by permission of the publisher.*

The ability to locate accurate information underlies the acquisition of knowledge in many instances. The exercise below is one of those designed to measure the ability of 9-year-olds to employ a fundamental reference skill.

Locating Information

Look at the picture of a set of encyclopedias. What is the number of the book you would look in to find out about George Washington?



	Percent of Correct Responses 1971	1975	1980
○ *2*			
○ *5*			
○ *9*			
○ *10*			
● *11*	*73.6*	*78.5*	*81.8*
○ *I don't know.*			

Performance increased on all three sample exercises from the first to the third assessment. However, the increase, 8.2%, was greatest on this reference skills exercise.

Group Results

Table 3 displays mean changes in performance for the nation and the reporting groups on the total pool of reading change exercises. The largest positive change in performance, over the three assessments, occurred among black students, who increased 9.9 percentage points from 1971 to 1980. The second largest positive change, 7.5 percentage points, occurred among students in the Southeastern region of the country; and the third largest positive change, 6.0 percentage points, occurred among those students who attend schools in rural communities. The advantaged-urban group is the only group that did not evidence a significant change from the first to the third assessment.

Literal Comprehension

Exhibit 1 displays national and group changes in the literal comprehension skills of 9-year-olds. Most interesting is the finding that no group decreased significantly in its performance on the literal comprehension exercises over the nine years. Some groups have made great increases in this fundamental aspect of reading performance and, while several remain slightly below the national level of performance, they have narrowed the gap between themselves and the nation.

Several changes are noteworthy:

- Southeastern 9-year-olds improved by 8.4 percentage points from the first to the third assessment, eliminating any significant difference between their performance and the nation's.

- Males performed significantly below the national level on each administration of the literal comprehension exercises. However, their overall gain from the first to the third assessment was larger than the overall gain of females (4.5% and 3.3%, respectively).

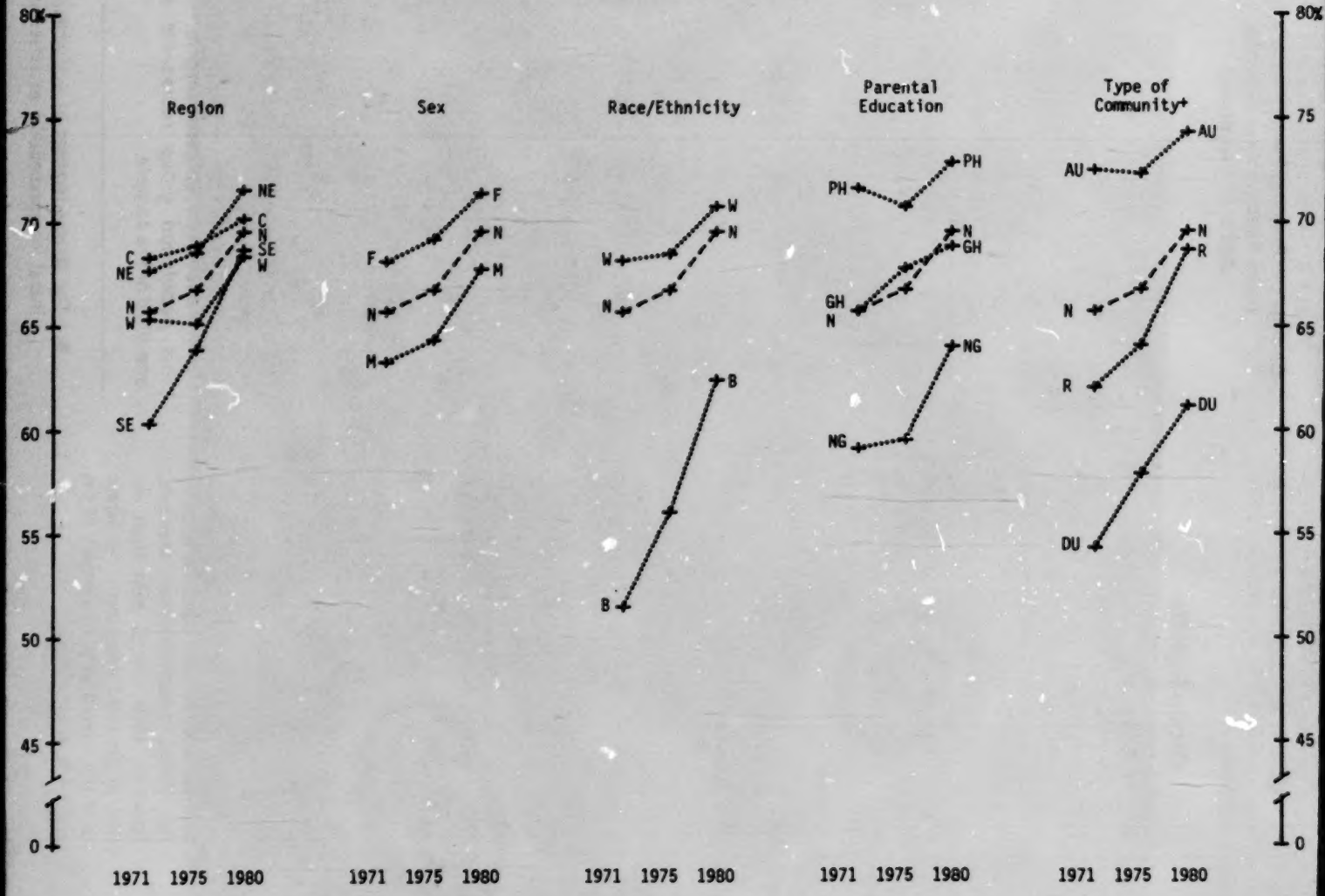
TABLE 3. National and Group Mean Changes in Reading Performance Across Three Reading Assessments, Age 9, 57 Exercises§

	1971-75	1975-80	1971-80
Nation	1.3*	2.6*	3.9*
Region			
Northeast	1.1	3.0*	4.1*
Southeast	3.0*	4.5*	7.5*
Central	0.9	1.3	2.2*
West	0.6	2.8*	3.4*
Sex			
Male	1.4*	3.0*	4.4*
Female	1.1*	2.3*	3.5*
Race/ethnicity			
White	0.6	2.3*	2.8*
Black	4.8*	5.1*	9.9*
Parental education			
Not graduated high school	1.4	2.7*	4.0*
Graduated high school	1.5*	1.0	2.4*
Post high school	-0.5	1.9*	1.4*
Type of community†			
Rural	2.1	4.0*	6.0*
Disadvantaged urban	2.4	2.8	5.2*
Advantaged urban	-0.3	1.8*	1.6

§There were 58 exercises in the second and third assessments.
**Asterisk indicates significant change in performance between assesments.*
†This population group represents about one-third of the sample.

- The largest increase in performance on literal comprehension exercises is that

EXHIBIT 1. National and Group Mean Percentages of Success for 9-Year-Olds on Literal Comprehension Exercises Assessed in 1971, 1975 and 1980



+*This population group represents about one-third of the sample.*

for black students. Although the group performed below the national level in each assessment, it improved by 10.9 percentage points from the first to the third assessment. Black youngsters, as a group, were 14.2 percentage points below the nation in 1971 and 10.3 percentage points below the nation in 1975, but the gap has now narrowed to 7.1 percentage points.

- Students who indicated their parents have not graduated from high school also showed positive changes in performance over the three assessments. Across the nine-year span, this group of students gained by 5.0 percentage points, narrowing the gap between them and the nation.

- Students who attend schools in rural communities also evidenced positive changes in literal comprehension skills. Although this group has remained below the national level of performance, their percentage below the nation (0.9%) is statistically nonsignificant.

- Students who attend schools in disadvantaged-urban communities improved their performance in literal comprehension skills, narrowing the gap between themselves and the nation from 11.4% to 8.4%.

Inferential Comprehension

Changes in the performance of 9-year-olds on inferential comprehension exercises are as noteworthy as those on the literal comprehension exercises. Exhibit 2 presents national and group results on these exercises.

None of the reporting groups decreased in performance over the nine years, and several groups experienced significant increases. Some of the highlights of group results follow.

- As a group, students in the Southeastern region of the country registered an increase of 6.5 percentage points between the first and third assessments. Accordingly, the gap between them and all 9-year-olds narrowed from -4.7 percentage points in the first assessment to -1.6 percentage points in the third assessment.

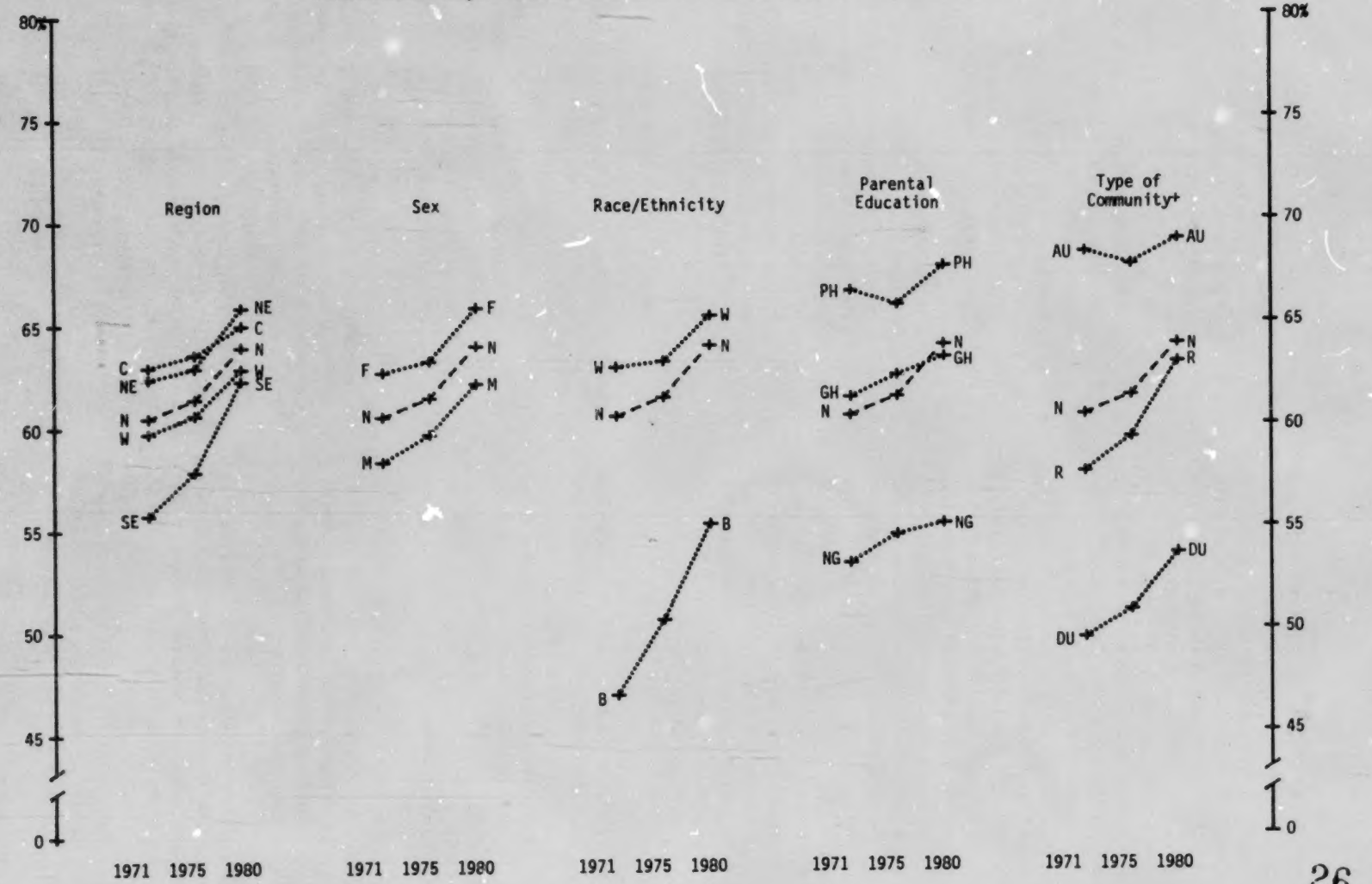
- Males made performance gains from the first to the third assessment (3.8 percentage points), although they remained slightly below national levels of performance. Females, as a group, continued their performance lead over the nine years and remained above the nation.

- The largest gain in percentages of correct responses on inferential comprehension exercises occurred among students who are black. This group's cumulative gain was 8.4 percentage points from the first to the third assessment. The gap in performance between blacks and the nation at the time of the first assessment (-13.6%) has now narrowed to -8.7% in the third assessment.

- Students who attend schools in rural communities showed an upward trend in performance on the inferential comprehension exercises over the nine-year period. As a result, this group moved somewhat closer to the national level of performance. At the time of the first assessment, this group was 2.8 percentage points below the nation, but by the third assessment, they were a nonsignificant 0.9% below the nation.

Performance leads held by some groups in the first assessment of inferential comprehension decreased in the third assessment, although these groups remained above national levels of performance. These groups are the Central region, females, whites, students whose parents have had some post high school education and students who attend schools in advantaged-urban communities. Their performance remained relatively stable, with slight increases, while national performance increased by larger amounts.

EXHIBIT 2. National and Group Mean Percentages of Success for 9-Year-Olds on Inferential Comprahension Exercises Assessed in 1971, 1975 and 1980



+This population group represents about one-third of the sample.

Reference Skills

Nine-year-olds' performance increased more on reference skills than on inferential or literal comprehension over the three reading assessments (Table 2).

Although the group results from the third assessment of reference skills are encouraging, there are two exceptions to the general upward trend noted nationally. First, students who reported at least one parent has graduated from high school were 1.8 percentage points *above* the nation in the first assessment, but declined to 1.6 percentage points *below* the nation in the third assessment. Each of these percentages is statistically significant. Second, the difference between the nation and students who attend schools in disadvantged-urban communities increased from the first to the third assessment. Performance for this group was 12.3 percentage points below the nation in the first assessment, but 13.1 percentage points below by the third assessment.

Exhibit 3 illustrates results for the groups in each assessment of reference skills. Below are some of the highlights of group results.

- The Southeastern group significantly increased its performance by 7.4 percentage points between the first and third assessments. The position of Southeasterners relative to the nation has changed well: while 3.9 percentage points below the nation in the first assessment, the group's difference from the nation has now narrowed to a statistically insignificant 1.3 percentage points.

- Females performed better, as a group, than did males in all three assessments, with little change in their relative differences from the national level.

- Black students, as a group, demonstrated a large increase in performance on the reference skills exercises, with their greatest significant increase (7.1%) occurring between the first and second assessments. While 15.3 percentage points below the nation in the first assessment, the group was 10.4 percentage points below in the third assessment.

- Students who attend schools in rural communities experienced gains in performance on reference skills similar to those of blacks and students in the Southeast — 7.3 percentage points across the three assessments. As a result, this group of students moved from 3.9% below the nation to a nonsignificant 1.4% below the nation.

The position held by some groups in the first assessment of reference skills was modified in the third assessment since their performance advantages declined, and in some cases, the decline is significant. These groups are the Central region, females, whites and students whose parents have had some post high school education.

In addition to the literal and inferential comprehension and reference skills exercises, 9-year-olds were administered three exercises designed to measure their grammar and sentence-ordering skills. Students at ages 13 and 17 were not assessed on this dimension.

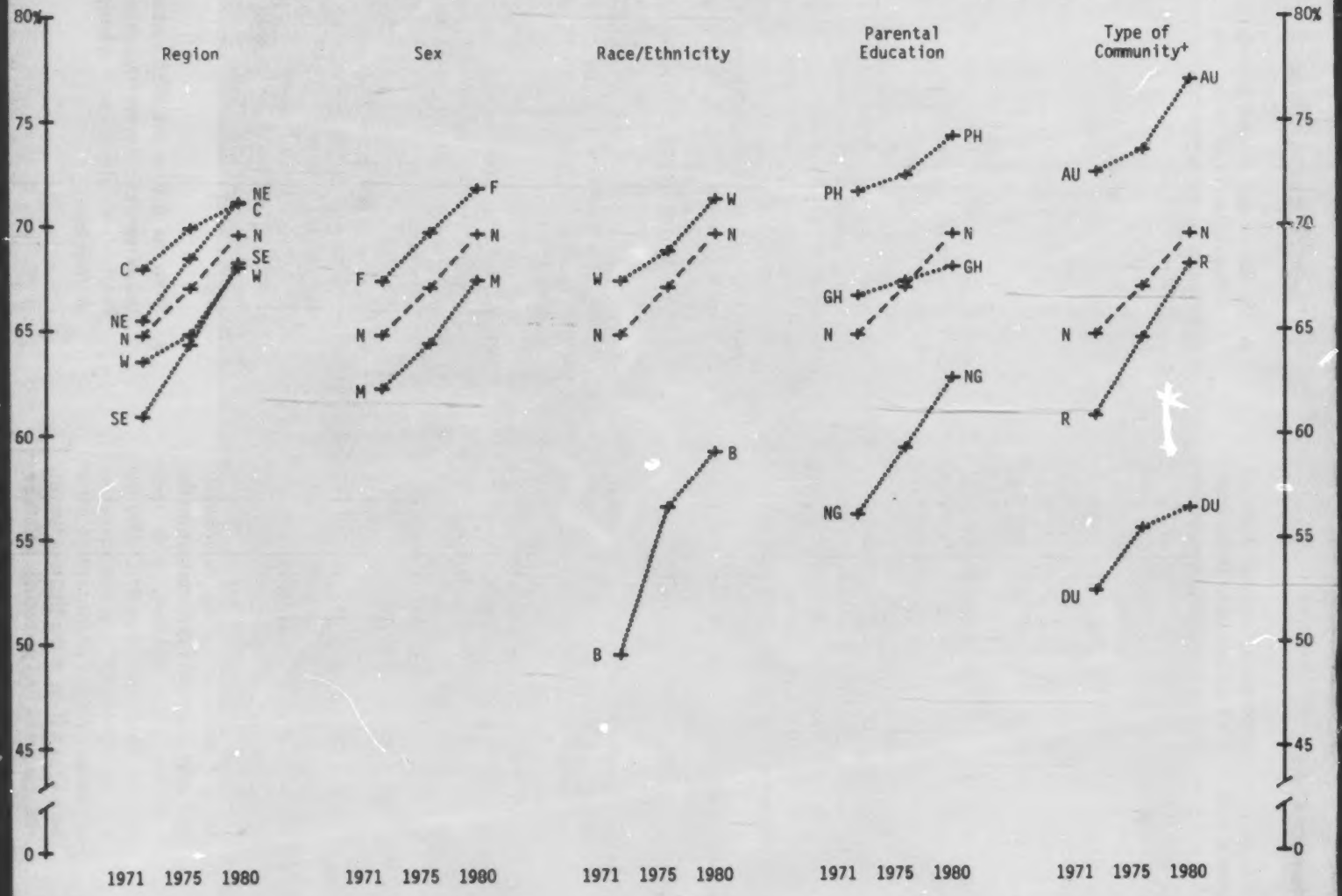
Mean national performance of 9-year-olds increased over the period of three assessments on these exercises. Readers are cautioned, however, not to overgeneralize the educational significance of performance on the basis of only three exercises. Results indicate:

- In the first assessment, the mean national percentage of correct responses was 82.2; in the second assessment, 84.8; and in the third, 87.4.

- Nine-year-olds increased significantly in performance (2.6%) between the first and second assessments, and from the second to the third assessment, the increase of 2.7 percentage points also represents a significant change in performance.

- From the first to the third assessment, the increase of 5.3 percentage points represents a significant change in performance.

EXHIBIT 3. National and Group Mean Percentages of Success for 9-Year-Olds on Reference Skills Exercises Assessed in 1971, 1975 and 1980



+*This population group represents about one-third of the sample.*

CHAPTER 3

THE READING PERFORMANCE OF 13-YEAR-OLDS: NATIONAL AND GROUP RESULTS

National Results

Table 4 displays the mean percentage of correct responses and the mean changes in performance for the nation on all the exercises administered to 13-year-olds by categories of exercises. Performance results nationally indicate no significant changes on the total pool (71) of change exercises over the three reading assessments.

In literal comprehension, 13-year-olds showed a significant increase of 1.6 percentage points from the first to the third assessment. Their performance on inferential comprehension remained relatively stable from the first to the third assessment, with no significant gains or losses. Thirteen-year-olds declined significantly, 1.7%, between the first and second assessments on reference skills exercises, but gained 2.6% in this area between the second and third assessments.

TABLE 4. National Mean Percentages and Changes in Correct Responses for 13-Year-Olds in Three Reading Assessments#

	Years			Changes		
	1970	1974	1979	1970-74	1974-79	1970-79
Total reading exercises (71)	60.0%	59.9%	60.8%	-0.1	0.9	0.8
Literal comprehension	61.1	61.8	62.7	0.7	0.9	1.6*
Inferential comprehension	56.1	55.3	55.5	-0.8	0.2	-0.6
Reference skills	65.8	64.1	66.7	-1.7*	2.6*	0.9

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*

Following are examples of exercises used to measure literal and inferential comprehension and reference skills for this age group. Generally, the results on these single exercises are similar to those found for the total pool.

The "Magic Trick" exercise is an example of a typical literal comprehension exercise.

Magic Trick

Read the passage and answer the questions which follow it.

A favorite trick of magicians is to appear to pick articles and objects from the air. Here is a

magic feat that you can perform for your friends.

Tie one end of a black thread to a small silk handkerchief and tie the other end to a button on your shirt or blouse. If your sleeves are long, you should roll them up and hide the handkerchief by stuffing it under your left sleeve.

Next, stand in a dimly-lit corner of the room. Make certain that you are far enough away from your audience so that the thread is not visible. Then declare that you intend to produce the handkerchief from thin air.

After you begin talking, catch the thread between the thumb and first finger of each hand. Then quickly stretch out your right arm. As the right arm is outstretched the thread on the right thumb will pull the handkerchief from the left sleeve, through the left hand, and to your right hand.

The handkerchief will appear so quickly that it will seem to have come from air.

	Percent of Correct Responses		
	1970	1974	1979
A. What is the FIRST thing you are told to do to perform this trick?			
o Roll up your sleeves.			
o Stretch out your right arm.			
o Hide the handkerchief under your left sleeve.			
● Tie a black thread to one corner of the handkerchief.	*89.4*	*88.3*	*89.8*
o I don't know.			
B. To perform this trick, what are you told to do while standing in a dimly-lit corner of the room?			
o Roll up your sleeves.			
o Hide the handkerchief under the left sleeve.			
o Tie a black thread to one corner of the handkerchief.			
● Tell the audience that you will produce the handkerchief from the air.	*74.3*	*75.1*	*75.4*
o I don't know.			

The "Toaster" exercise requires students to make an inference drawn from the similarity between two entities. This exercise calls for the student to use his or her previous knowledge and/or experience to correctly respond to the question.

The Toaster

Read the story and answer the question which follows it.

Each morning when I come down to breakfast, I sit by my silver-scaled dragon with the flaming red jaws. I feed him fat slices of bread one by one. He hands them back to me by snapping his mouth open. Whenever I want to I can make him stop snapping and breathing fire by simply pulling his tail.

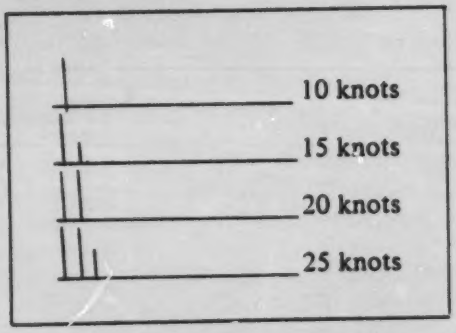
In the story the writer is really describing his toaster, not a dragon. How does he make this comparison clear without mentioning the word "toaster?"

	Percent of Correct Responses		
	1970	1974	1979
o By showing how both his toaster and the dragon terrify him.			
o By placing them both in a setting which suggests that they are alike.			
● By selecting some qualities of his toaster which are similar to those of a dragon.	*73.6*	*74.3*	*75.5*
o By selecting some qualities of his toaster which are different from those of a dragon.			
o I don't know.			

The reference skills exercise below is one of those designed to measure the ability of 13-year-olds to use reference data in solving a problem. Specifically, this exercise taps the student's ability to extrapolate information through use of a key or formula to answer or resolve a problem.

Speed of Wind*

The symbols in the box below are used to show the speed of wind on weather maps. Look at the box. How would 35 knots be shown?



	Percent of Correct Responses 1970	1974	1979
●	*62.9*	*62.7*	*64.3*
○ *I don't know.*			

*From WEATHER by Paul E. Lehr, R. Will Burnett and Herbert S. Zim, © 1975, 1965, 1957 by Western Publishing Company, Inc. Used by permission of the publisher.

Group Results

Table 5 displays national and group mean changes across the three reading assessments for 13-year-olds on all 71 exercises. Generally, the pattern of performance appears consistent. Mean performance for the nation and all but one group over the three assessments remained stable. Only among blacks was there a significant mean increase in performance from 1970-79.

TABLE 5. National and Group Mean Changes in Reading Performance Across Three Reading Assessments, Age 13, 71 Exercises

	1970-74	1974-79	1970-79
Nation	-0.1	0.9	0.8
Region			
Northeast	-1.3	0.8	-0.5
Southeast	1.5	1.1	2.6
Central	-0.1	0.9	0.8
West	-0.6	0.9	0.4
Sex			
Male	-0.1	1.2	1.1
Female	-0.1	0.4	0.3
Race/ethnicity			
White	-0.7	0.7	0.0
Black	1.0	3.2*	4.2*
Parental education			
Not graduated high school	-0.2	0.4	0.2
Graduated high school	-0.9	0.1	-0.9
Post high school	-0.4	-0.6	-1.0
Type of community†			
Rural	0.4	1.4	1.8
Disadvantaged urban	-1.3	4.8	3.6
Advantaged urban	-0.5	1.3	0.8

**Asterisk indicates significant change in performance between assessments.*

†This population group represents about one-third of the sample.

Literal Comprehension

Exhibit 4 shows national and group performance across the three assessments on literal comprehension exercises. None of the reporting groups declined significantly from the first to the third assessment.

Three groups registered significant changes from the first to the third assessment. Although still performing below the national level, these groups have narrowed the gap between them and the nation.

- Students in the Southeast gained by 3.8 percentage points.
- Male students gained by 1.8 percentage points.
- Black students gained by 5.3 percentage points.

Other findings of interest are these:

- Gains by students in the rural group were not statistically significant from 1970 to 1979, but since these gains were larger than national gains, the group's position relative to the nation has changed. In the first assessment, the rural group was 3.9% below the nation, but in the third assessment, the difference narrowed to a nonsignificant 2.6%.
- A significant gain, 5.2 percentage points, was made by students in the disadvantaged-urban group from the second to the third assessment, with the result that this group has also narrowed the gap between it and the nation.
- Although they remained above the national level, several groups—Northeasterners, females, whites, the post-high-school group and the advantaged-urban group—no longer are as distant from the nation as indicated in the first assessment.

Inferential Comprehension

Exhibit 5 shows national and group performance for three administrations of the inferential comprehension exercises. Performance patterns are subtle and, perhaps, more difficult to discern in inferential than in literal comprehension or reference skills. No significant increases or decreases occurred in any group's performance between the second and third assessments. Black 13-year-olds, as a group, improved significantly between the first and third assessments, while the rest of the nation showed a slight decline. As a result, the gap between this group and the nation changed from 12.8% to 9.4%.

Several groups showed an upward trend in performance between the first and third assessments, although such increases are not significant. However, the effect of such gains has been to slightly close the performance gaps between these groups and the nation.

- The Southeastern group improved, with the difference between it and the nation changing from 3.6% to 2.5%.
- The disadvantaged-urban group improved, with the difference between it and the nation changing from 10.4% to 6.0%.
- Males, as a group, also improved, with the difference between them and the nation changing from 2.1% to 1.8%.

Four groups declined significantly in performance from the first to the third assessment:

- White 13-year-olds, as a group, declined by 1.3%.
- Students who reported at least one parent has had some post high school education declined by 2.4%.
- Students who reported neither parent has graduated from high school declined by 2.0%.
- Students who reported at least one parent has graduated from high school declined by 1.9%.

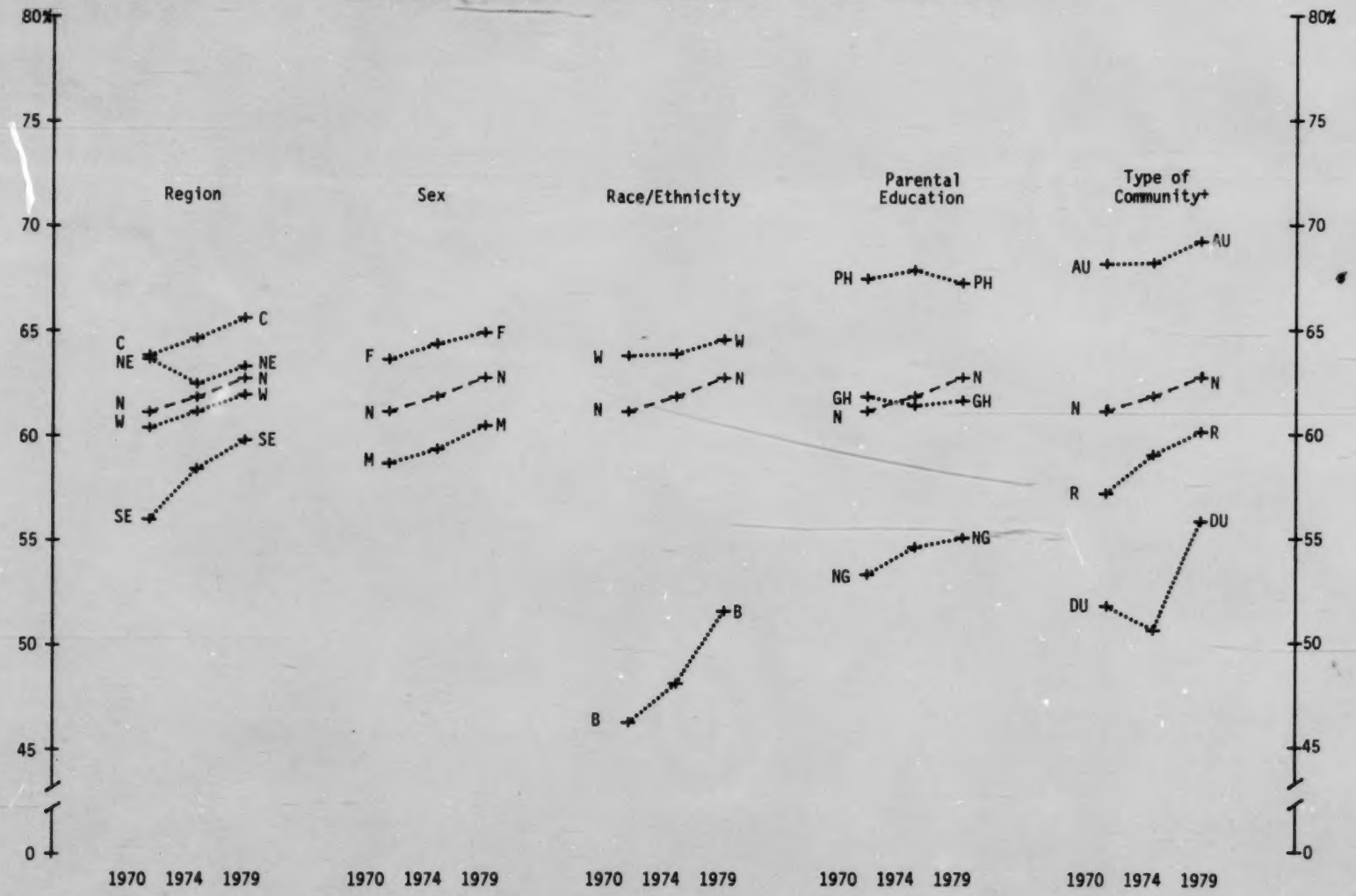
Reference Skills

Reference skills performance results for groups relative to the nation in each of the three assessments are displayed in Exhibit 6. While no group experienced significant cumulative increases or decreases from the first to the third assessment, several groups gained significantly from the second to the third assessment. These groups are:

- The Central region gained by 3.7 percentage points.
- Males gained by 3.0 percentage points.
- Whites gained by 2.7 percentage points.
- Blacks gained by 5.0 percentage points.
- The not-graduated-high-school group gained by 3.4 percentage points.

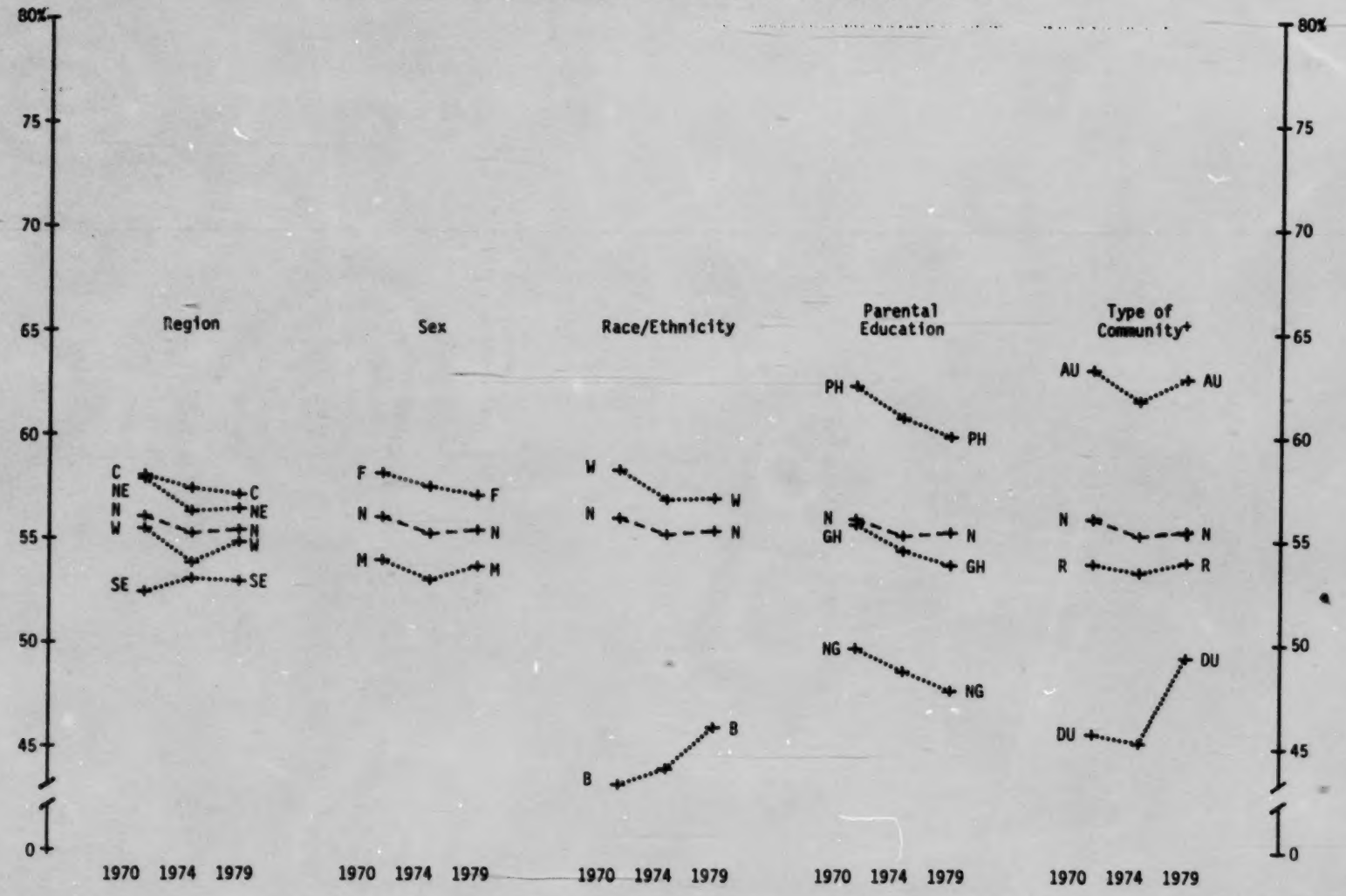
However, students who are female, those who are white and those who reported at least one parent has had some post high school education

EXHIBIT 4. National and Group Mean Percentages of Success for 13-Year-Olds on Literal Comprehension Exercises Assessed in 1970, 1974 and 1979



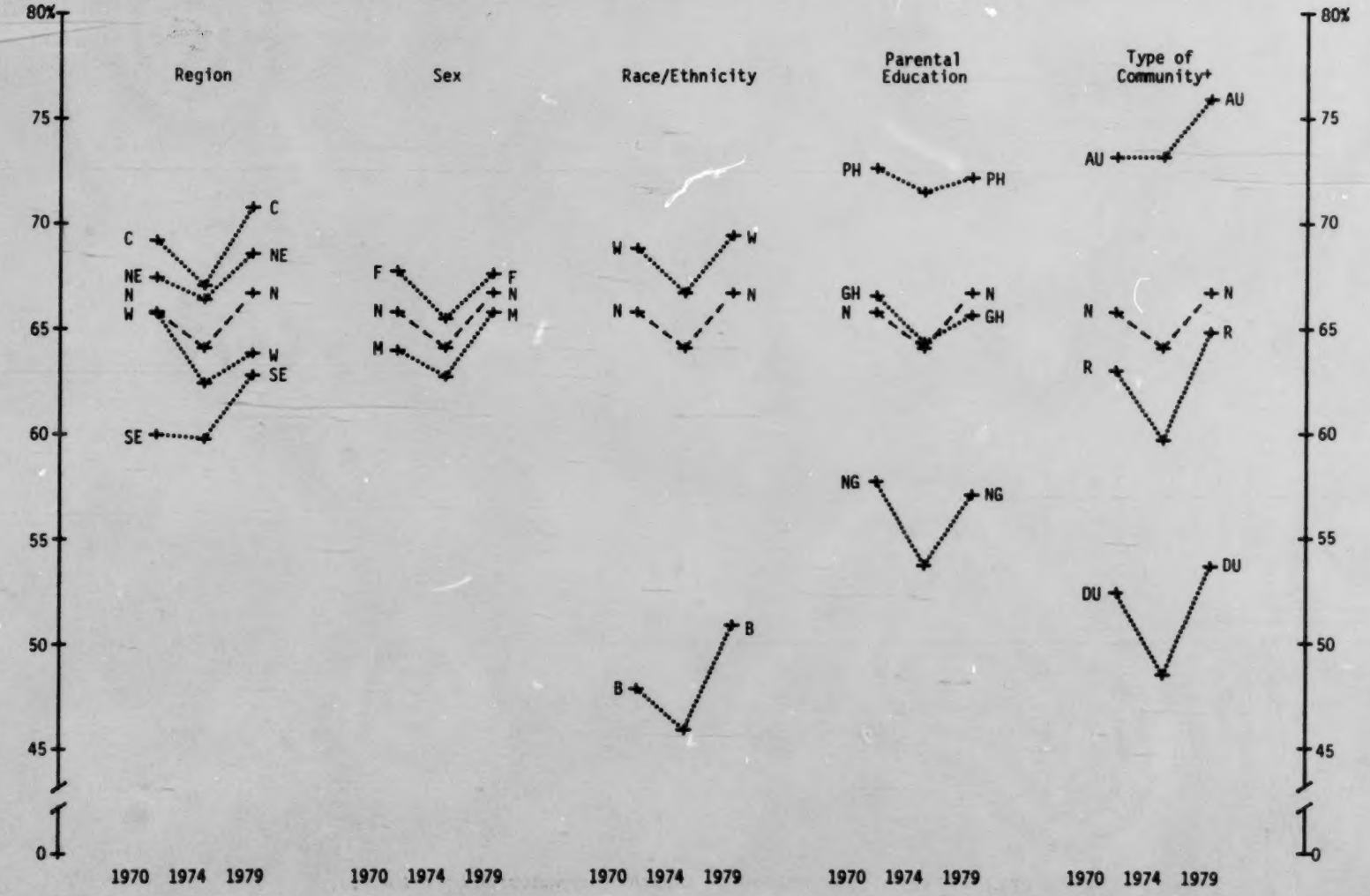
+*This population group represents about one-third of the sample.*

EXHIBIT 5. National and Group Mean Percentages of Success for 13-Year-Olds on Inferential Comprehension Exercises Assessed in 1970, 1974 and 1979



+*This population group represents about one-third of the sample.*

EXHIBIT 8. National and Group Mean Percentages of Success for 13-Year-Olds on Reference Skills Exercises Assessed in 1970, 1974 and 1979



+*This population group represents about one-third of the sample.*

were not as far above national levels of performance as they were in the first assessment. Conversely, the performance differences between the nation and students in the Central region and those who attend schools in advantaged-urban communities continued to increase significantly, resulting in a greater distance above the nation than in the first assessment.

Several groups performed significantly below national levels in each assessment of reference skills, but the effect of cumulative increases over the three assessments is a gradual closing of the performance gaps between them and the nation. These are:

- Southeasterners.
- Males.
- Blacks.

Students in the Northeast were significantly above the nation in the second assessment, but were no longer significantly above the nation in the third assessment.

Students who attend schools in rural communities were significantly below the nation in the second assessment, but this group has narrowed the gap so that the differences between them and the nation is no longer significant.

CHAPTER 4

THE READING PERFORMANCE OF 17-YEAR-OLDS: NATIONAL AND GROUP RESULTS

National Results

Table 6 shows the mean percentage of correct responses and the mean changes in performance for the nation on the total pool of exercises administered to 17-year-olds in school in three national assessments. No significant changes in performance occurred at the national level on the total number of exercises.

This table also indicates performance results for the nation by categories of reading exercises. While performance of 17-year-olds remained at the same level in literal comprehension and reference skills, it declined significantly (2.1%) from the first to the third assessment on the inferential comprehension exercises.

TABLE 6. National Mean Percentages and Changes in Correct Responses for In-School 17-Year-Olds in Three Reading Assessments#

	Years			Changes		
	1971	1975	1980	1971-75	1975-80	1971-80
Total reading exercises (71)	68.9%	69.0%	68.2%	0.0	-0.8	-0.7
Literal comprehension	72.2	72.7	72.0	0.5	-0.7	-0.2
Inferential comprehension	64.2	63.3	62.1	-0.9	-1.2	-2.1*
Reference skills	69.4	70.1	70.2	0.6	0.2	0.8

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*

The three exercises below are examples of those designed to measure literal and inferential comprehension and reference skills, respectively.

The first exercise was administered to 13- and 17-year-olds and was designed to measure literal comprehension. For those interested, results are presented for both age groups, and this exercise is one of those included in the summary of results in Appendix B.

Book Club

Below is an advertisement from a national magazine. Read the advertisement and answer the questions on the next page.

SCOUP BOOK CLUB
P. O. Box 170
Allentown, Michigan 13074

Please enroll me in your Scoup Book Club. In accordance with your offer, please send FREE, as an enrollment gift, the two books: "The Top News Stories of 1979" and "Joe Cooke Looks at 1980," worth $12.95. Also send the book "Sports - - Past and Present" (regularly $4.95) as the first selection, billing me the membership price of $3.50 plus a small mailing charge. If not pleased, I may return these books in 10 days and owe nothing; otherwise continue to send a new book each month at the same price. In the future I may return any selection which I am not pleased with, paying only the postage. I may cancel membership any time after I have received six additional monthly selections.

Your name _____

Address _____

City _____ State _____ Zip Code _____

Signature _____

Canadian orders will be shipped from Canada at a slightly higher price.

	Percent of Correct Responses					
	Age 13			Age 17		
	1970	1974	1979	1971	1975	1980
A. How much will the shipping costs be if you live in Canada?						
o $1.49.						
o Lower than if you lived in the United States.						
o The same as if you lived in the United States.						
● Higher than if you lived in the United States.	*77.1*	*77.1*	*78.3*	*91.1*	*91.2*	*89.9*
o I don't know.						
B. What money should you send with the order for the books?						
o $1.49.						
o $1.49 plus shipping fees.						
o $3.50 plus shipping fees.						
o $14.00 plus shipping fees.						
● No money until billed.	*40.2*	*35.5*	*32.6*	*44.7*	*46.9*	*43.2*
o I don't know.						
C. How many additional books MUST you buy?						
o 2						
o 4						
● 6	*56.8*	*59.0*	*62.2*	*77.1*	*77.3*	*74.4*
o 8						
o I don't know.						

The exercise below measures inferential comprehension and requires the student to make a connection between two pieces of information stated in the passage, although the connection between them is not explicit.

Mt. Everest

Read the passage and answer the question which follows it.

Mt. Everest, 29,002 ft. (British survey) 29,028 ft. (India survey), was conquered May 29, 1953, when Edmund Hillary, New Zealand, and Tenzing Norkey, a Sherpa of Nepal living in India, reached the top. They were members of an expedition led by Col. Henry C.J. Hunt for the Royal Geographical Society and the Alpine Club, London.

Why are two heights given for Mt. Everest?

	Percent of Correct Responses		
	1971	1975	1980
o Mt. Everest has two different peaks.			
o Mt. Everest consists of two mountains.			
● Two different groups measured Mt. Everest.	*83.2*	*81.5*	*81.8*
o The height of Mt. Everest changed between the two surveys.			
o I don't know.			

The following reference skills exercise requires the student to select information from reference material. Part A requires the student to use the general, annotated information given after the author's name, while part B requires the student to make an inference from the absence of information following the author's birthdate.

Library Catalog Card

On this page is a copy of a library catalog card. Read the card and answer the questions which follow it.

INTERPLANETARY VOYAGES

629.1
Ob2 Oberth, Hermann, 1894-
Man into space; new projects for rockets and space travel. Translated by G.P.H. De Freville New York, Harper

232 pp. illus 22 cm

1 Interplanetary voyages 2 rockets
1 Title *629.14353

	Percent of Correct Responses		
	1971	1975	1980
A. This book would probably be BEST for writing a report on			
o transcontinental travel.			
● travel to other planets.	*62.5*	*60.1*	*62.2*
o the nature of our solar system.			
o the history of projects in space.			
o the requirements to become an astronaut.			
o I don't know.			
B. When did Oberth die? (Oberth is not dead, or Oberth is still living)	*55.6*	*55.4*	*53.8*

Group Results

Table 7 presents national and group mean changes across the three reading assessments for 17-year-olds on 71 exercises. Mean changes for the nation over the three assessments—whether positive or negative—are insignificant, which indicates that 17-year-olds are currently performing very close to the way they did in 1971. Performance by groups, generally, reflects the same pattern of performance with the exception of the graduated-from-high-school and post-high-school education groups. The former declined 2.6% from the first to the third assessment; the latter, 1.7 percentage points. However, these declines were not so large as to alter the overall pattern of national performance among the 17-year-olds.

TABLE 7. National and Group Mean Changes in Reading Performance Across Three Reading Assessments, Age 17 in School, 71 Exercises

	1971-75	1975-80	1971-80
Nation	0.0	-0.8	-0.7
Region			
Northeast	-0.6	-1.8	-2.4
Southeast	1.9	-0.2	1.7
Central	0.0	-1.1	-1.0
West	-0.8	0.7	-0.1
Sex			
Male	0.1	-0.4	-0.3
Female	-0.0	-1.0	-1.0
Race/ethnicity			
White	-0.0	-0.6	-0.7
Black	0.5	0.1	0.5
Parental education			
Not graduated high school	0.1	-1.4	-1.3
Graduated high school	-0.5	-2.0*	-2.6*
Post high school	-0.5	-1.2*	-1.7*
Type of community†			
Rural	1.7	-2.8	-1.1
Disadvantaged urban	-1.4	-0.0	-1.4
Advantaged urban	0.3	-2.5*	-2.2

**Asterisk indicates significant change in performance between assessments.*

†This population group represents about one-third of the sample.

Literal Comprehension

Performance results for literal comprehension exercises for the nation and reporting groups relative to the nation in each assessment are displayed in Exhibit 7. No group evidenced a significant increase in performance from the first to the third assessment. Only one group—those who reported at least one parent has graduated from high school—declined significantly, 1.6%, from the first to the third assessment.

From the second to the third assessment, two groups declined significantly, with the effect that they are no longer as far above the national level of performance as in the previous assessments.

- Students who reported at least one parent has had some post high school education declined by 1.4 percentage points.
- Students who attend school in advantaged-urban communities declined by 3.1 percentage points.

Performance among the remaining groups continued at nearly the same levels as indicated in previous reading assessments. However, performance trends for two groups have had a cumulative effect on their position relative to national levels of performance.

- Seventeen-year-olds in the Southeast have narrowed the gap between them and the rest of the nation.
- The gap between those attending schools in disadvantaged-urban communities and the nation has become a bit wider over the three assessments.

Inferential Comprehension

Exhibit 8 displays performance results for the reporting groups relative to the nation on inferential comprehension exercises. None of the reporting groups made significant increases from the first to the third assessment, nor from the second to the third assessment.

Several groups declined significantly in performance from the first to the third assessment, although in most cases their performance remained fairly stable between the second and third assessment:

- The Northeast declined by 3.7 percentage points.
- Females declined by 2.6 percentage points.
- Whites declined by 2.0 percentage points.
- The not-graduated-high-school group declined by 2.6 percentage points.
- The graduated-high-school group declined by 4.0 percentage points.
- The post-high-school group declined by 3.1 percentage points.

These declines in performance, in turn, affected the groups' positions relative to the nation in various ways. For example, students in the Northeastern and Central regions are no longer significantly above the nation in performance on inferential comprehension exercises. Conversely, students who are female, those who reported at least one parent has had some post high school education and those who attend advantaged-urban schools remained significantly *above* the national level in the third assessment, although the distance between them and the nation is not as great as in the first assessment. Students who reported neither parent has graduated from high school and those who reported at least one parent has graduated from high school were a bit further *below* the national level of performance in the third assessment than in the first assessment.

Two groups declined significantly between the second and third assessments.

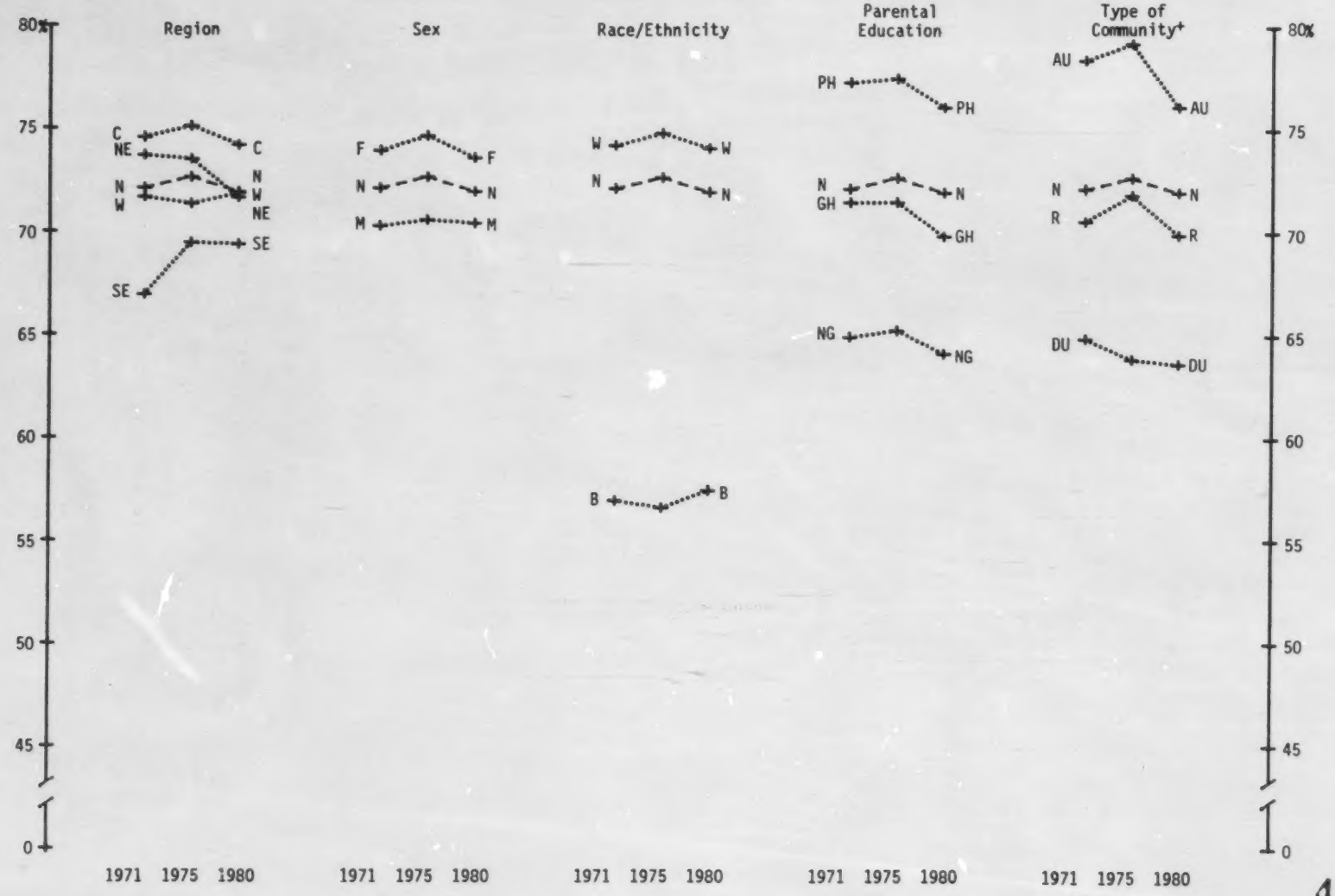
- Students who reported at least one parent has graduated from high school declined 2.9 percentage points.
- Students who attend schools in rural communities declined 4.1 percentage points.

Reference Skills

Exhibit 9 permits a comparison between the performance of reporting groups and the nation. Unlike performance patterns on literal and inferential comprehension exercises, no significant increases *or* decreases occurred among the reporting groups on the reference skills exercises from the first to the third assessment nor from the second to the third assessment.

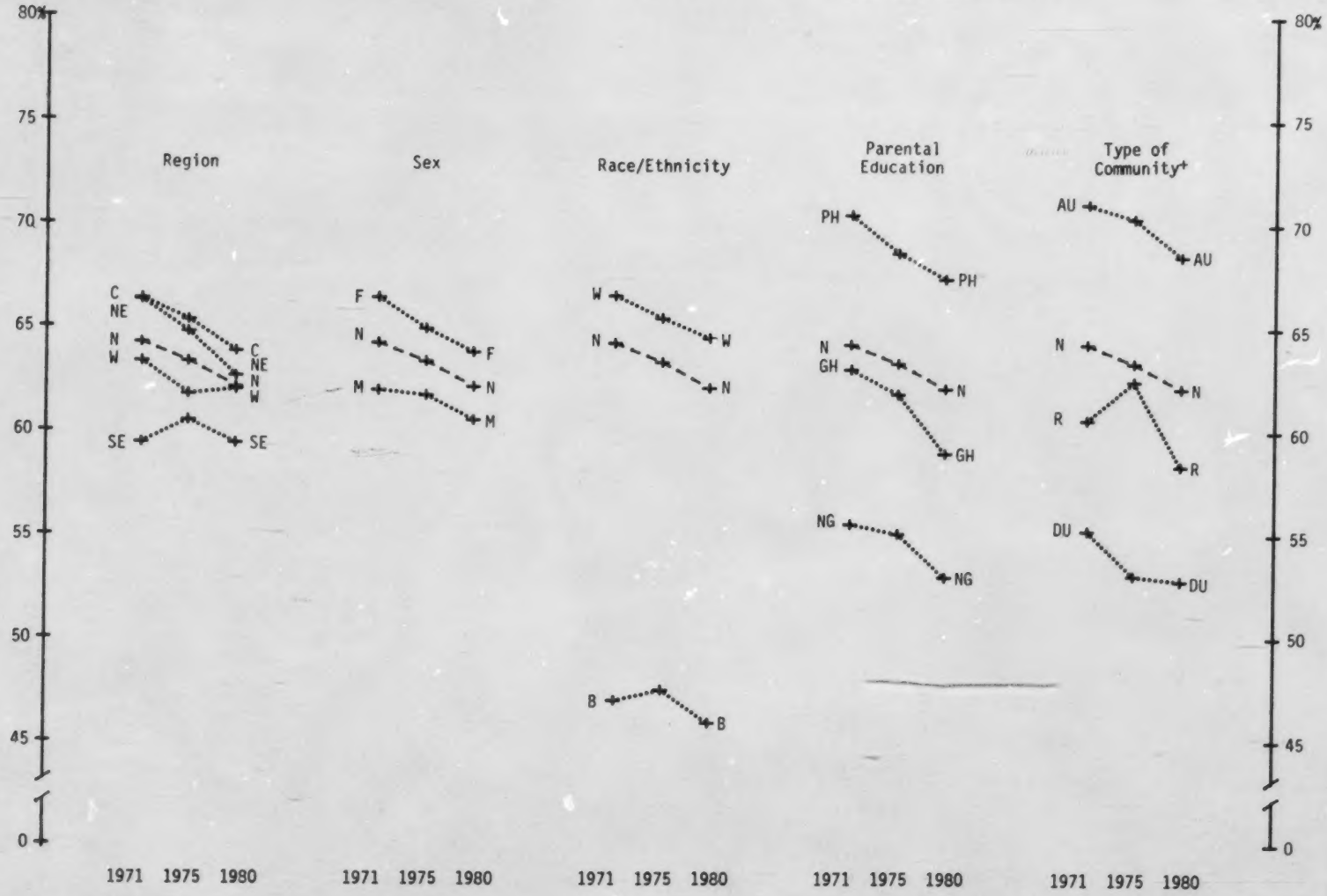
While no statistically significant changes occurred in the performance of groups, the cumulative effect of upward or downward trends in overall performance has resulted in some modification of group positions relative to the nation. For example, several groups performed above the nation in each assessment of reference skills. However, the distance between these groups and

EXHIBIT 7. National and Group Mean Percentages of Success for In-School 17-Year-Olds on Literal Comprehension Exercises Assessed in 1971, 1975 and 1980



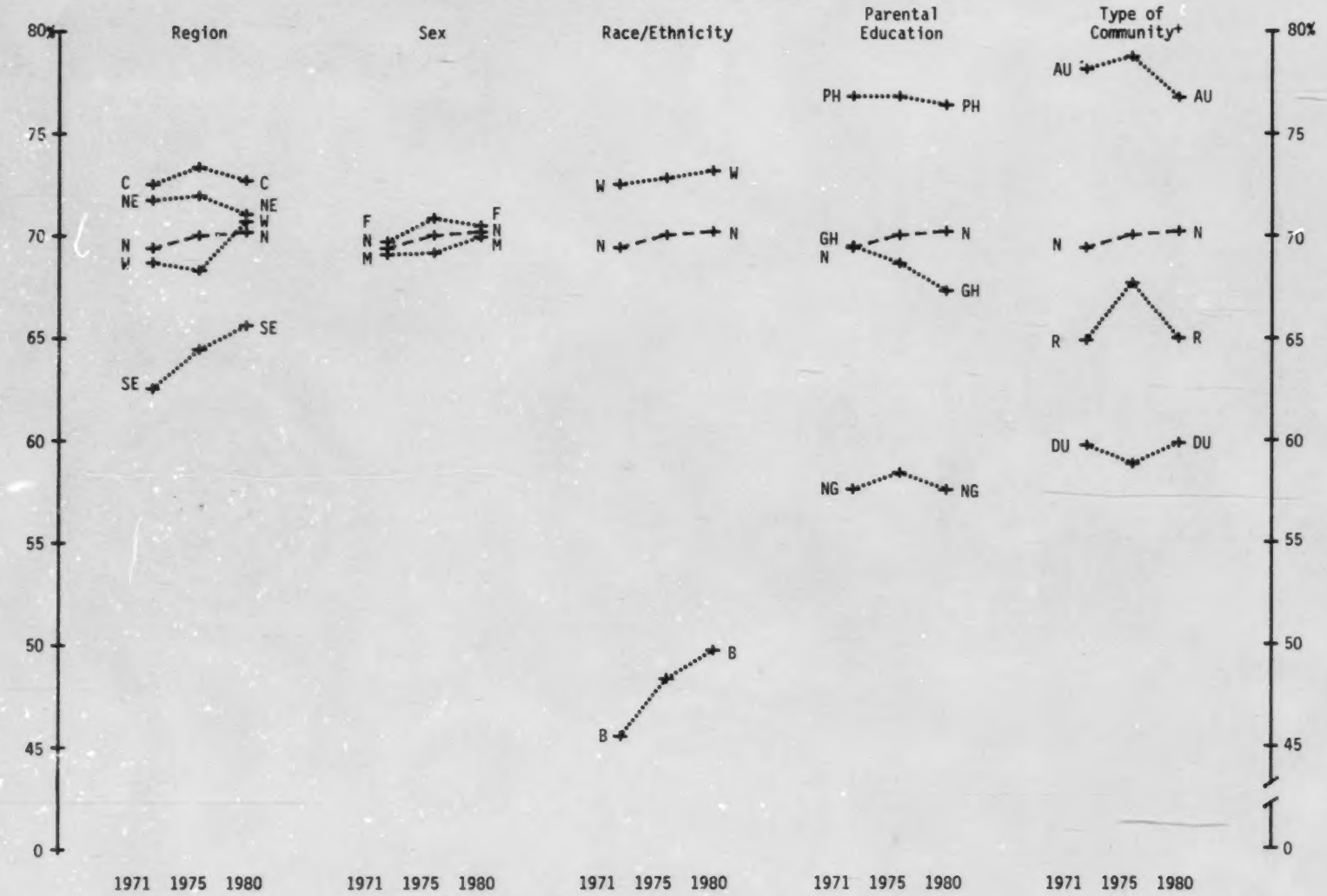
+*This population group represents about one-third of the sample.*

EXHIBIT 8. National and Group Mean Percentages of Success for In-School 17-Year-Olds on Inferential Comprehension Exercises Assessed in 1971, 1975 and 1980



+*This population group represents about one-third of the sample.*

EXHIBIT 9. National and Group Mean Percentages of Success for In-School 17-Year-Olds on Reference Skills Exercises Assessed in 1971, 1975 and 1980



30

+This population group represents about one-third of the sample.

the nation has narrowed as national levels of performance tended to move upward. These are:

- Students who are white.
- Students who reported at least one parent has had some post high school education.
- Students who attend schools in advantaged-urban communities.

Three other groups who demonstrate this same general pattern are students in the Central and Northeastern regions and students who are female. While significantly above the nation following the second assessment, the difference between them and the nation in the third assessment is no longer statistically significant. Males, on the other hand, performed significantly below the nation in the second assessment, but performed slightly below the national level in the third assessment.

Two groups who performed significantly below national levels in each assessment nevertheless narrowed the gap between them and the nation over the three assessments. These are:

- Students in the Southeastern region of the country.
- Students who are black.

Several groups performed significantly below national levels in two assessments, showing no upward trends in overall performance, with the effect that they remained below the national average.

- Students who reported neither parent has graduated from high school.
- Students attending schools in rural communities.
- Students who attend schools in disadvantaged-urban communities.

The performance of students in the Western region has remained stable in each assessment, with no significant differences from the nation. The only significant progressive decline over the span from 1971-80 is that exhibited by the group who reported that at least one parent has graduated from high school. Their overall standing declined from 0.1% above the nation in 1971 to 2.9% below the nation in 1980.

CHAPTER 5

ANOTHER LOOK AT NATIONAL RESULTS: ACHIEVEMENT CLASS AND RACIAL/ETHNIC RESULTS BY REGION

Achievement Class

The National Assessment recently implemented a new analysis variable called achievement class. Achievement class is a background variable used to partition the national sample of respondents into four ranges of performance—low achievers through high achievers. Results show that each range of performance includes students from each of National Assessment's traditional reporting groups (race, sex, region, community type and level of parental education). Achievement-class analysis permits two types of observation: changes in the mean percentage of correct responses per achievement class over time and changes in the distribution of group membership within achievement classes over time.

Results of analysis by achievement class are of interest in measuring changes in performance over time because this variable indicates whether changes in performance occur uniformly or differentially across achievement classes. For example, given an average 3% change from one assessment year to the next, is there also about a 3% change in the performance of each achievement class or is there a greater change in the lower or higher achievement class?

Achievement class is not one of the variables previously included in the National Assessment sample design. It represents an after-the-fact analysis based on the relative performance of students on the particular booklet of exercises with which they were assessed. The accuracy of the analysis is dependent on the extent to which students would tend to have the same relative position on each of the exercise booklets. While National Assessment believes that the general content of the booklets is approximately equivalent and knows that each booklet was administered to an equivalent national sample of students at each age, it does not have the empirical evidence needed to support this belief as no student was assessed with more than one booklet.

Despite this limitation, the data have been included because of the useful insights provided by the achievement-class variable for interpretation of the reading results. Should the achievement-class variable be used to report other assessment results, the equivalence of the assessment booklets will be established prior to assessment.

Table 8 shows national results by achievement classes for ages 9, 13 and 17 in the three reading assessments. Tables 9, 10 and 11 show national results by achievement classes for ages 9, 13 and 17 in literal comprehension, inferential comprehension and reference skills, respectively. These tables show the mean percentages of correct responses for the nation and for each of the four achievement classes in the three assessments. The differences between levels of performance for the nation and each achievement class can easily be calculated. Also shown are the changes in performance for the nation and each achievement class between assessments. The achievement-class data make it possible to identify the range of performance—lowest to highest—on a given set of exercises.

Achievement-class data presented in Table 8 indicate significant changes in mean performance for 9-year-olds in achievement class 1 (the lowest one-fourth of the sample) with successive assessments. The results are similar for 13-year-olds in achievement class 1, although the change between the second and third assessments is not significant. Results for 17-year-olds in achievement class 1 indicate a significant increase between the first and second assessments, although no change was observed between the second and third assessments. For 17-year-olds, the overall effect in achievement class 1 is a slight, but nonsignificant,

increase from the first to the third assessment.

In achievement class 4 (the highest one-fourth of the sample) for 9-year-olds, mean performance remained stable across the three assessments. For 13- and 17-year-olds in achievement class 4, a significant decline occurred between the first and second assessments, but appeared to be arrested by the third assessment. However, the decline in this achievement class between the first and second assessments resulted in a significant decline from the first to the third assessment.

If these findings are considered in the light of overall national results, also shown on Table 8, the increased mean performance at age 9 appears to have occurred primarily in the lower achievement classes, while mean performance in the higher achievement classes remained stable. At age 13, mean performance in the lower achievement classes tended to increase across assessments, but this is not the case in the higher achievement classes, where achievement class 4 showed a decline. This resulted in no significant increases across the three assessments for age 13 in the overall national results.

At age 17, mean performance remained stable in the lower achievement classes, while declining significantly in the highest achievement class across the nine-year span. Thus, at age 17, the slight downward trend in overall performance may have resulted primarily due to the decline of those students in the higher achievement classes.

TABLE 8. National Results by Achievement Classes: Mean Percentages and Changes in Correct Responses for Ages 9, 13 and In-School 17 in Three Reading Assessments#

	Age 9: 57 Exercises§					
	1971	Change 1971-75	1975	Change 1975-80	1980	Change 1971-80
Nation	64.0%	1.3*	65.2%	2.6*	67.9%	3.9*
Achievement class 1	38.4	3.8*	42.2	5.0*	47.2	8.8*
Achievement class 2	61.7	1.4	63.1	2.6*	65.7	4.0*
Achievement class 3	72.1	0.4	72.6	1.6	74.2	2.0
Achievement class 4	83.7	-0.6	83.1	1.4	84.5	0.8
	Age 13: 71 Exercises					
	1970	Change 1970-74	1974	Change 1974-79	1979	Change 1970-79
Nation	60.0	-0.1	59.9	0.9	60.8	0.8
Achievement class 1	36.2	2.1*	38.2	1.5	39.7	3.6*
Achievement class 2	54.9	0.9	55.8	1.3	57.1	2.2*
Achievement class 3	67.0	-0.6	66.4	0.4	66.8	-0.2
Achievement class 4	82.0	-2.7*	79.3	0.3	79.5	-2.4*
	Age 17: 71 Exercises					
	1971	Change 1971-75	1975	Change 1975-80	1980	Change 1971-80
Nation	68.9	0.0	69.0	-0.8	68.2	-0.7
Achievement class 1	44.6	2.1*	46.7	-1.0	45.8	1.2

TABLE 8. National Results by Achievement Classes: Mean Percentages and Changes in Correct Responses for Ages 9, 13 and In-School 17 in Three Reading Assessments#

(Continued)

Achievement class 2	64.7	0.8	65.5	-1.0	64.5	-0.2
Achievement class 3	76.9	-0.8	76.1	-0.7	75.4	-1.5
Achievement class 4	89.6	-1.9*	87.6	-0.4	87.2	-2.3*

#Figures may not total due to rounding.
§There were 58 exercises in the second and third assessments.
**Asterisk indicates significant change in performance between assessments.*

Note: Achievement class 1 = lowest one-fourth
Achievement class 2 = middle lowest one-fourth
Achievement class 3 = middle highest one-fourth
Achievement class 4 = highest one-fourth

Table 9 displays national mean performance for 9-, 13- and 17-year-olds and mean performance in the achievement classes on the literal comprehension exercises. At ages 9 and 13, performance increased significantly from the first to the third assessment in achievement class 1, while 17-year-olds in achievement class 1 did not increase significantly. At age 9, achievement class 1 increased in each assessment, while achievement class 1 at age 13 showed a significant increase only from the first to the second assessment. Even though the upward trend for 13-year-olds in achievement class 1 continued from the second to the third assessment, the change is nonsignificant.

Performance increases were not noted at age 9, 13 or 17 over the three assessments in achievement class 4. Performance means of 9-year-olds in achievement class 4 remained stable, that of 13-year-olds declined significantly and that of the 17-year-olds evidenced a slight, but nonsignificant, decline. The decline in achievement class 4 for 13-year-olds occurred from the first to the second assessment.

TABLE 9. National Results by Achievement Classes: Mean Percentages and Changes in Correct Responses for Ages 9, 13 and In-School 17 on Literal Comprehension Exercises in Three Reading Assessments#

	Age 9: 20 Exercises§					
	1971	Change 1971-75	1975	Change 1975-80	1980	Change 1971-80
Nation	65.7%	1.0	66.8%	2.8*	69.6%	3.9*
Achievement class 1	39.5	3.8*	43.3	5.4*	48.7	9.2*
Achievement class 2	64.0	0.6	64.6	3.4*	68.0	4.0*
Achievement class 3	74.4	0.2	74.6	1.5	76.1	1.7
Achievement class 4	85.1	-0.5	84.6	1.0	85.6	0.5

TABLE 9. National Results by Achievement Classes: Mean Percentages and Changes in Correct Responses for Ages 9, 13 and In-School 17 on Literal Comprehension Exercises in Three Reading Assessments#

(Continued)

	Age 13: 38 Exercises					
	1970	Change 1970-74	1974	Change 1974-79	1979	Change 1970-79
Nation	61.1	0.7	61.8	0.9	62.7	1.6*
Achievement class 1	36.1	3.3*	39.4	1.6	41.0	5.0*
Achievement class 2	55.8	2.0*	57.7	1.1	58.9	3.1*
Achievement class 3	68.1	0.4	68.4	0.6	69.0	0.9
Achievement class 4	84.6	-2.8*	81.8	0.2	82.0	-2.6*

	Age 17: 35 Exercises					
	1971	Change 1971-75	1975	Change 1975-80	1980	Change 1971-80
Nation	72.2	0.5	72.7	-0.7	72.0	-0.2
Achievement class 1	49.6	1.5	51.1	-0.9	50.2	0.6
Achievement class 2	68.0	1.4	69.4	-0.4	69.0	1.0
Achievement class 3	79.4	0.4	79.8	-0.8	79.1	-0.3
Achievement class 4	91.6	-1.2	90.4	-0.8	89.6	-2.0

#Figures may not total due to rounding.
§There were 20 exercises in the second and third assessments.
**Asterisk indicates significant change in performance between assessments.*

Note: Achievement class 1 = lowest one-fourth
Achievement class 2 = middle lowest one-fourth
Achievement class 3 = middle highest one-fourth
Achievement class 4 = highest one-fourth

Table 10 presents national mean performance for 9-, 13- and 17-year-olds and mean performance for each achievement class on the inferential comprehension exercises. At age 9, mean performance increased significantly in achievement class 1 with each assessment. For ages 13 and 17, mean performance in achievement class 1 remained stable across the assessments.

At age 9, mean performance in achievement class 4 remained stable in each assessment. At ages 13 and 17, mean performance in achievement class 4 declined significantly across the three assessments. The significant decline in achievement class 4 occurred between the first and second assessments, but the downward trend appeared to be arrested between the second and third assessments.

TABLE 10. National Results by Achievement Classes: Mean Percentages and Changes in Correct Responses for Ages 9, 13 and In-School 17 on Inferential Comprehension Exercises in Three Reading Assessments#

Age 9: 27 Exercises

	1971	Change 1971-75	1975	Change 1975-80	1980	Change 1971-80
Nation	60.5%	0.9	61.4%	2.5*	63.9%	3.5*
Achievement class 1	35.5	3.3*	38.8	4.7*	43.4	7.9*
Achievement class 2	57.8	1.5	59.3	2.2*	61.6	3.7*
Achievement class 3	68.5	-0.1	68.4	1.4	69.8	1.2
Achievement class 4	80.0	-0.8	79.2	1.8	81.0	1.0

Age 13: 24 Exercises

	1970	Change 1970-74	1974	Change 1974-79	1979	Change 1970-79
Nation	56.1	-0.8	55.3	0.2	55.5	-0.6
Achievement class 1	35.0	1.2	36.2	0.5	36.7	1.7
Achievement class 2	50.8	0.1	50.9	0.9	51.8	1.0
Achievement class 3	61.8	-1.3	60.6	-0.4	60.2	-1.7
Achievement class 4	76.6	-3.1*	73.5	-0.4	73.1	-3.4*

Age 17: 25 Exercises

	1971	Change 1971-75	1975	Change 1975-80	1980	Change 1971-80
Nation	64.2	-0.9	63.3	-1.2	62.1	-2.1*
Achievement class 1	39.1	2.5*	41.6	-1.4	40.1	1.0
Achievement class 2	58.7	-0.1	58.6	-2.0	56.7	-2.0
Achievement class 3	72.3	-2.6*	69.7	-1.2	68.4	-3.9*
Achievement class 4	86.8	-3.4*	83.5	-0.3	83.2	-3.7*

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*

Note: Achievement class 1 = lowest one-fourth
Achievement class 2 = middle lowest one-fourth
Achievement class 3 = middle highest one-fourth
Achievement class 4 = highest one-fourth

Table 11 presents national mean performance for 9-, 13- and 17-year-olds for each achievement class on the reference skills exercises. At age 9, mean performance increased significantly in achievement class 1 in each successive assessment. At age 13, the slight downward trend noted in achievement class 1 between the first two assessments was reversed, and a significant increase was noted in the third assessment. The result for age 13 in achievement class 1 across the three assess-

TABLE 11. National Results by Achievement Classes: Mean Percentages and Changes in Correct Responses for Ages 9, 13 and In-School 17 on Reference Skills Exercises in Three Reading Assessments#

	Age 9: 8 Exercises					
	1971	Change 1971-75	1975	Change 1975-80	1980	Change 1971-80
Nation	64.8%	2.3*	67.0%	2.6*	69.6%	4.8*
Achievement class 1	39.0	5.0*	44.0	4.0*	48.0	9.0*
Achievement class 2	60.4	2.9*	63.3	1.8	65.1	4.7*
Achievement class 3	71.8	1.7	73.6	3.1*	76.7	4.9*
Achievement class 4	87.9	-0.5	87.4	1.3	88.6	0.7
	Age 13: 9 Exercises					
	1970	Change 1970-74	1974	Change 1974-79	1979	Change 1970-79
Nation	65.8	-1.7*	64.1	2.6*	66.7	0.9
Achievement class 1	39.6	-1.0	38.6	3.5*	42.2	2.6
Achievement class 2	61.9	-1.2	60.8	2.8	63.5	1.6
Achievement class 3	76.1	-3.1*	73.0	1.8	74.8	-1.3
Achievement class 4	85.6	-1.5	84.0	2.3	86.3	0.8
	Age 17: 11 Exercises					
	1971	Change 1971-75	1975	Change 1975-80	1980	Change 1971-80
Nation	69.4	0.6	70.1	0.2	70.2	0.8
Achievement class 1	41.2	3.4*	44.5	-0.1	44.4	3.2
Achievement class 2	67.9	0.6	68.5	-0.5	68.0	0.2
Achievement class 3	79.5	-0.8	78.7	0.7	79.4	-0.1
Achievement class 4	89.2	-0.7	88.4	0.6	89.1	-0.1

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*

Note: Achievement class 1 = lowest one-fourth
Achievement class 2 = middle lowest one-fourth
Achievement class 3 = middle highest one-fourth
Achievement class 4 = highest one-fourth

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ments is a positive, but nonsignificant increase in mean performance. Although this result is the same for 17-year-olds, the significant increase in mean performance in achievement class 1 occurred between the first and second assessments, with essentially no change between the second and third assessments.

Mean performance for reference skills exercises in achievement class 4 has virtually remained stable for all ages across three assessments.

Generally, the achievement-class data indicate that most of the significant increases in performance at all three ages occurred in the lowest one-fourth (achievement class 1) of the national sample.

When the national sample is partitioned into ranges, the expected distribution of groups within each range is a function of the number of ranges selected: in the case of four selected ranges, it would be 25%. If the estimated distribution of any group is not 25%, then that group is under- or overrepresented within an achievement class. Using the achievement-class variable as a model, changes over time in a group's distribution across the ranges of achievement can be identified.

Results indicate that members of the National Assessment reporting groups appear in all achievement classes. Tables 12, 13 and 14 show the distribution of the reporting groups within the lowest and highest achievement classes (achievement classes 1 and 4) for 9-, 13- and 17-year-olds, respectively. The distribution of the reporting groups within these two classes are presented for each of the three reading assessments so that changes in proportions per achievement class can be observed. These tables show only the lowest and highest quartiles of the achievement-class variable because it would be cumbersome to present in the same display the four achievement classes for each of the three assessment years.

The percentages in Tables 12, 13 and 14 should not be confused with mean percentages of correct responses to exercises. The following points illustrate how the distributional data may be read, by using the results in Table 12 as an example.

- A larger proportion of students in the Northeastern and Central regions of the country were in achievement class 4 than in achievement class 1, while the reverse distribution occurred among Southeasterners and Westerners. Changes in proportions were small for Northeasterners and Westerners between assessments. The proportion of students in the Central region increased over the three assessments in achievement class 1, with a commensurate decrease in achievement class 4. However, the proportion of Southeasterners in achievement class 1 decreased while it increased to near 25% in achievement class 4 over the three assessments.
- Black students tended to be overrepresented in achievement class 1 in each assessment, but increased in the proportions within achievement class 4 by the third reading assessment.
- More students within the post-high-school group were in achievement class 4 than 1 in each assessment, but their proportion increased in achievement class 1 by the third reading assessment.

TABLE 12. Distribution of Groups Within Lowest and Highest Achievement Classes in Three Reading Assessments, Age 9#

Groups	Achievement Class 1			Achievement Class 4		
	1971	1975	1980	1971	1975	1980
Region						
Northeast	21.1%	21.6%	21.2%	27.5%	29.0%	28.8%
Southeast	35.8	31.9	29.6	18.6	20.0	24.6
Central	19.3	20.0	22.8	29.2	28.2	25.8
West	26.5	27.9	26.0	23.0	21.6	21.6
Sex						
Male	28.9	30.1	29.4	21.9	22.0	21.9
Female	21.1	19.9	20.6	28.1	28.0	28.1
Race/ethnicity						
White	19.6	21.1	21.6	28.3	27.7	27.4
Black	56.4	48.8	45.4	5.8	8.4	10.4

TABLE 12. Distribution of Groups Within Lowest and Highest Achievement Classes in Three Reading Assessments, Age 9#

(Continued)

Parental education						
Not graduated high school	39.6	39.9	42.7	13.9	13.7	15.3
Graduated high school	23.0	22.6	26.2	23.6	25.0	22.8
Post high school	13.0	17.0	17.4	36.8	34.3	33.2
Type of community†						
Rural	31.8	29.8	25.1	20.7	22.2	20.9
Disadvantaged urban	47.9	47.5	49.4	9.8	10.7	9.0
Advantaged urban	11.2	11.8	12.3	39.7	36.6	34.6

#Percentages in the rows and columns should not be added.
†This population group represents about one-third of the sample.

Generally, results displayed in Table 13 for 13-year-olds indicate a distributional pattern similar to that of 9-year-olds, displayed in Table 12.

- While the distribution of students in the Northeastern, Central and Western regions remained fairly constant over the three assessments, the distribution of students in the Southeast changed from the first to the third assessment. In the third assessment, the proportion of Southeasterners in achievement class 4 had increased from 18% to 22%.

- At age 13, black students again tended to be overrepresented in achievement class 1 in each assessment, but the proportion in achievement class 4 increased by the third assessment.

TABLE 13. Distribution of Groups Within Lowest and Highest Achievement Classes in Three Reading Assessments, Age 13#

Groups	Achievement Class 1			Achievement Class 4		
	1970	1974	1979	1970	1974	1979
Region						
Northeast	20.7%	22.4%	24.6%	29.0%	26.2%	26.6%
Southeast	35.3	32.5	31.9	18.1	20.2	22.0
Central	20.4	19.9	18.2	29.1	29.4	28.6
West	24.8	26.6	26.1	22.7	23.2	22.5
Sex						
Male	29.5	29.4	29.0	21.7	20.7	21.6
Female	20.6	20.6	21.2	28.3	29.3	28.2
Race/ethnicity						
White	19.4	20.3	20.9	28.4	27.8	28.0
Black	56.1	56.2	49.8	6.0	5.9	6.7

TABLE 13. Distribution of Groups Within Lowest and Highest Achievement Classes in Three Reading Assessments, Age 13#

(Continued)

Parental education						
Not graduated high school	40.5	41.2	40.8	12.1	12.2	9.8
Graduated high school	22.7	24.6	26.9	23.7	21.3	19.9
Post high school	12.9	12.9	15.7	36.4	37.6	35.4
Type of community†						
Rural	33.7	31.2	27.8	20.2	18.8	24.5
Disadvantaged urban	45.3	50.2	40.5	11.5	9.5	13.9
Advantaged urban	11.9	10.8	10.9	38.5	38.7	42.4

#Percentages in the rows and columns should not be added.
†This population group represents about one-third of the sample.

Distribution data for 17-year-olds are displayed in Table 14.

- Changes in the distribution of Southeastern students noted at ages 9 and 13 persist at age 17, with a smaller proportion of these students appearing in achievement class 1 from the first to the third assessment.
- Increases in the distribution of black students noted at ages 9 and 13 did not occur at age 17: fewer black students appeared in achievement class 4 in the third assessment than in the first assessment.

TABLE 14: Distribution of Groups Within Lowest and Highest Achievement Classes in Three Reading Assessments, Age 17 In School#

Groups	Achievement Class 1			Achievement Class 4		
	1971	1975	1980	1971	1975	1980
Region						
Northeast	20.5%	22.5%	24.8%	28.1%	27.4%	25.6%
Southeast	35.9	32.3	31.6	18.4	20.4	20.9
Central	20.7	19.8	19.8	27.3	28.2	27.4
West	26.1	28.1	25.2	24.3	22.2	25.4
Sex						
Male	28.7	29.8	28.8	22.2	22.7	23.6
Female	21.4	20.4	21.1	27.8	27.2	26.4
Race/ethnicity						
White	19.9	20.1	19.7	27.6	27.7	28.2
Black	62.7	61.7	61.8	5.7	4.9	3.9
Parental education						
Not graduated high school	42.0	42.1	42.2	11.6	10.7	10.2
Graduated high school	25.2	27.2	29.9	21.6	20.4	18.8

TABLE 14: Distribution of Groups Within Lowest and Highest Achievement Classes in Three Reading Assessments, Age 17 In School#

(Continued)

Post high school	13.8	14.4	15.5	35.8	34.9	33.6
Type of community†						
Rural	29.4	27.8	30.0	20.2	22.6	16.7
Disadvantaged urban	43.9	44.3	43.4	13.0	11.9	10.5
Advantaged urban	12.2	12.3	14.6	36.9	39.8	34.4

#Percentages in the rows and columns should not be added.
†This population group represents about one-third of the sample.

In summary, data in Tables 12, 13 and 14 indicate that the same groups tended to be over-represented in achievement class 1 (the lowest one-fourth) at ages 9, 13 and 17. These are blacks, Southeasterners, those in the not-graduated-high-school group and those in the disadvantaged-urban group. Among these four groups, the distribution of blacks at ages 9 and 13 changed over the three assessments, with a larger proportion appearing in achievement class 4 in the third assessment. For black 17-year-olds, the proportion appearing in achievement class 4 in the third assessment decreased. The proportion of Southeasterners in achievement class 4 at ages 9, 13 and 17 grew larger from the first to the third assessment.

The distributional data for all other groups remained fairly similar at each age over the three assessments. Groups with a larger representation in achievement class 4 than in achievement class 1 are: females, whites, the post-high-school group and the advantaged-urban group.

Racial/Ethnic Results by Region

In response to interest expressed by various groups within the educational community, the National Assessment conducted a two-way analysis of the data for racial/ethnic groups and regions of the country. Table 15 displays the mean percentages of correct responses of whites and blacks by regions in each reading assessment, with changes between assessments, for each age.

TABLE 15. Mean Percentages and Changes in Correct Responses in Three Reading Assessments: Race by Region, Ages 9, 13 and In-School 17#

Race by Region	Age 9: 57 Exercises§					
	1971	Change 1971-75	1975	Change 1975-80	1980	Change 1971-80
Whites in Northeast	67.8%	1.2	69.0%	2.6*	71.6%	3.7*
Whites in Southeast	63.9	1.4	65.3	3.9*	69.2	5.3*
Whites in Central	68.0	1.1	69.1	1.2	70.3	2.3*
Whites in West	64.8	1.8	66.6	2.2*	68.8	4.0*
Blacks in Northeast	54.1	2.2	56.4	5.6*	62.0	7.8*
Blacks in Southeast	45.4	7.6*	53.1	5.0*	58.1	12.7*
Blacks in Central	51.0	5.8*	56.8	3.8*	60.6	9.7*
Blacks in West	51.7	0.9	52.6	4.6	57.2	5.5

TABLE 15. Mean Percentages and Changes in Correct Responses in Three Reading Assessments: Race by Region, Ages 9, 13 and In-School 17#

(Continued)

	Age 13: 71 Exercises					
	1970	Change 1970-74	1974	Change 1974-79	1979	Change 1970-79
Whites in Northeast	64.3	-1.2	63.1	0.5	63.6	-0.7
Whites in Southeast	59.9	0.6	60.4	1.1	61.6	1.7
Whites in Central	64.4	0.0	64.3	0.5	64.8	0.4
Whites in West	61.1	1.0	62.1	1.1	63.2	2.2*
Blacks in Northeast	48.8	-0.3	48.5	4.7*	53.2	4.4
Blacks in Southeast	41.5	4.0*	45.5	-0.1	45.5	3.9
Blacks in Central	47.7	0.9	48.6	3.7	52.4	4.7
Blacks in West	48.1	-5.6*	42.6	7.9*	50.5	2.4

	Age 17: 71 Exercises					
	1971	Change 1971-75	1975	Change 1975-80	1980	Change 1971-80
Whites in Northeast	72.7	-0.1	72.6	-1.8	70.8	-1.9
Whites in Southeast	68.3	2.0	70.2	0.0	70.2	2.0
Whites in Central	72.6	0.3	72.9	-1.3	71.6	-1.0
Whites in West	69.9	0.6	70.6	1.0	71.6	1.7
Blacks in Northeast	56.1	-1.9	54.1	1.9	56.1	0.0
Blacks in Southeast	47.7	3.0	50.7	-0.9	49.8	2.1
Blacks in Central	53.8	1.1	54.9	-0.7	54.2	0.4
Blacks in West	51.8	-2.4	49.4	1.4	50.8	-1.0

#Figures may not total due to rounding.
§There were 58 exercises in the second and third assessments.
**Asterisk indicates significant change in performance between assessments.*

The results indicate the following:

Age 9

- In each region of the country, 9-year-old white students showed significant gains from the first to the third assessment. In the Southeastern, Northeastern and Western regions, significant gains also occurred between the second and third assessments, although the upward trend for whites in all regions was observed in each successive assessment.
- Black youngsters in the Southeast, Central and Northeast registered significant increases from the first to the third assessment. Significant increases in the Southeastern and Central regions occurred with each successive assessment, while only the increase between the second and third assessments reached significance for the Northeastern region.

Age 13

- At age 13, a significant increase occurred for

whites in the Western region of the country from the first to the third assessment, while the other regions remained fairly stable, as did the West between other assessment periods.

- Black students in all regions of the country showed an upward trend in performance from the first to the third assessment, although increases are not significant. Between the first and second assessments, black students in the Southeast showed a significant increase, while those in the Western region evidenced a significant decline. However, between the second and third assessments, black students in the Western and Northeastern regions showed significant increases, which resulted in the upward trend noted in the third assessment.

Age 17

- At age 17, no significant increases or decreases occurred in any of the regions for white students from the first to the third assessment, although a slight increase occurred in the Southeastern and Western regions and a similar decrease was observed in the Northeastern and Central regions.

- Black students at age 17 also showed no significant increases or decreases in any of the regions from the first to the third assessment, although the Western region showed a slight decrease while the remaining three regions remained stable.

* * * * *

The achievement-class results and the racial/ethnic results by regions reaffirm many of the findings presented in the preceding chapters of this report.

CHAPTER 6

A PERSPECTIVE ON THE RESULTS OF THREE READING ASSESSMENTS

Members of the Reading/Literature Advisory Committee and other reading experts met with National Assessment staff to consider the results presented in the preceding chapters of this report. Meeting in Denver were: Dr. Richard K. Barksdale, Dr. Carita A. Chapman, Dr. Charles R. Cooper, Dr. William Eller, Dr. Edward Fry, Dr. Robert Kaiser, Dr. Gloria Kuchinskas, Dr. Henry B. Maloney, Dr. Anthony Petrosky, Dr. Beverly Roller, Dr. Robert Schreiner, Dr. Dorothy Strickland and Mr. Seymour Yesner.

Observations by the panel of consultants provide a broad context for interpreting results of the three reading assessments and offer some view about future directions for reading instruction in America. Their opinions are theirs alone and do not necessarily represent either the views of the institutions with which they are affiliated or those of the National Assessment of Educational Progress, the Education Commission of the States or the National Institute of Education.

All participants wished to emphasize that the results in the preceding chapters of this report are based upon exercises designed to measure reading objectives developed in 1970. Therefore, the results permit a comparison between students at ages 9, 13 and 17 in 1970-71 and their age counterparts in 1979-80.

General Observations

The panel observed that gains made by 9-year-olds over the span of three reading assessments are larger than those evidenced in asessments of other learning areas surveyed by National Assessment. They saw many positive implications from the results, especially for the younger students in elementary schools, but also expressed concerns about the results for students in the higher grades. Several points of consensus emerged from the observations of panel members. Among these are the following:

- Increased attention to language and reading development has had positive effects on the performance of younger students over the past decnde.

- Educators cannot become complacent because of evidence of current gains. There is a need for continued funding and support of reading instruction in secondary schooling, focusing on inferential and critical thinking skills.

- Reading instruction should accommodate the shift between the reading needs of the early elementary years and the middle and higher years of secondary school.

9-Year-Olds

Panelists found the following results for 9-year-olds particularly interesting.

- Nine-year-olds made greater significant gains than the other age groups; they had improved significantly in literal and inferential comprehension and reference skills.

- Nine-year-olds progressed consistently over the span of three reading assessments.

- Nine-year-old students in the advantaged-urban group did not register a significant gain from the first to the third assessment, while all other reporting groups gained significantly over the span of three assessments.

- Black students at age 9, students who reside in

the Southeast and those who attend schools in rural communities made the largest gains from the first to the third assessment.

Panelists Chapman, Eller, Kaiser, Fry and Strickland expressed the belief that educators will be very encouraged by these results. Kaiser remarked:

I think we can be optimistic about some of this change, i.e., the 9-year-olds and the Southeast. I do believe that there is something systematic working to bring about this change, but we cannot say what these cause-and-effect relationships are.

Roller also cautioned:

Many who read the report probably will see the results as evidence of cause-and-effect relationships. It is fun to speculate and to imagine causes, but caution should be the rule in interpretation of the change results.

The panel concurred that the past decade was a time of increased interest in early childhood development, with the result that a number of social and instructional factors may have contributed to the large gains reflected in the data for 9-year-olds. Among these are such things as:

- Increased federal funding to impact early elementary years.
- Changes in curricular materials and approaches.
- Increased access to print and electronic media for teaching and training.

Speculating on some of the educational trends of the past decade that may have contributed to the gains of 9-year-olds, Schreiner commented:

These results may be attributable to recent trends in systematic, objectives-based instruction, compensatory reading programs or emphasis on the back-to-basics movements.

Commenting on gains made by black students, those in the Southeast and those who attend schools in rural and disadvantaged-urban communities, Kuchinskas stated:

I think this is directly attributable to the emphasis, in the past decade, on (a) systematizing reading instruction with student-specific skills, skills-based materials with mastery learning emphasized; (b) the infusion of federal funds to support these groups; and (c) the concern of teachers and parents about the gap that exists between these groups and other learners in reading and, consequently, an increased emphasis on reading instruction for them.

Panelists emphasized that the effects of social class, as characterized by level of parental education and type of community, are so pervasive as to account for nearly all the differences in performance between certain groups of students.

Eller commented:

While the media continue to foster the view that Johnny still cannot read, and that instructional methodologies used with primary-grade children are inefficient, it is noteworthy that 9-year-olds in 1980 performed better than their counterparts of 1971 and 1975 on every category of reading skills. The results of this third assessment in reading call for greater attention to the comprehension shortcomings at the higher grades, not for a drastic change in the methods of beginning reading instruction.

Summing up the view that increased interest in and funding of early childhood programs are beneficial to younger students, Barksdale said:

The progress indicated over the decade of the seventies indicates that the money spent on compensatory programs had effective results. And, these reading results suggest that the professional associations, working in collaboration with certain Office of Education units, have done their work well.

13- and 17-Year-Olds

The panel was somewhat encouraged about results for 13-year-olds. The most important

findings, in their view, are these:

- Thirteen-year-olds registered a significant increase in performance in literal comprehension from the first to the third assessment.

- They also registered a significant increase in performance in reference skills between the second and third assessments.

- Black students at age 13 made significant gains from the first to the third assessment in literal and inferential comprehension and in reference skills.

- The pattern of group standings relative to national levels of performance remained stable from the first to the third assessment. That is, groups who performed above or below the nation in 1970-71 continued this pattern in 1979-80.

Although pleased that no declines occurred among the 13-year-olds at the national level, panelists nevertheless had some concerns about the performance of this age group.

Cooper made this observation about the upward trend exhibited by the 9-year-olds and the stability exhibited by the 13-year-olds across the three assessments.

Nine-year-olds improved from 1970 to 1974. In 1974, those 9-year-olds became the age cohort of 13-year-olds to be assessed in 1979. Given the performance of 9-year-olds in 1974, we had every right to expect 13-year-olds to make a strong improvement from 1974 to 1979. They did not. Why did the performance of 13-year-olds appear to reach a plateau? Why did older students in elementary school lose the momentum they gained earlier?

Panelists mentioned several trends of the past decade that might contribute to this loss of momentum. For example, class sizes are increasing at a time when resources are becoming limited; there are increased demands on students' time due to employment outside the home; and recreational distractions are becoming more numerous and attractive.

Maloney added this comment:

Even though the performance of 13-year-olds over the decade of assessment indicates little change from a statistical view, simply maintaining the status quo can be perceived as a gain if one considers the increasing number of cultural diversions that are luring these youngsters away from reading.

In connection with the gains made by black students at age 13 from the first to the third assessment, Chapman commented:

It is noteworthy that 13-year-old black children showed increases in literal and inferential comprehension and in reference skills. Although they have not surpassed the national level of performance, the gap is being decreased—probably due to some of the same factors that contributed to their improvement at age 9.

Several panel members spoke of the 13- and 17-year-olds together because the implications for the two age groups are fairly similar, although the results of their assessment are not necessarily the same. These results for 17-year-olds were of particular interest to the panel.

- Seventeen-year-olds declined significantly in performance in inferential comprehension from the first to the third assessment.

- Students of parents who have graduated from high school and students of parents who have had some post high school education declined significantly in performance from the first to the third assessment.

- Overall performance of 17-year-olds remained relatively stable from the first to the third assessment.

The panel expressed certain concerns about the pattern of stability, with few increases, for 13-year-olds and the pattern of stability, with some declines, for 17-year-olds. Panel members agreed that there is a need for continued instruction at the secondary level, focusing on critical thinking, in addition to reading instruction that usually occurs in the context of English and literature courses. A general concern of the panel is mirrored in this observation by Petrosky:

I am concerned that the downward trends in reading of 13- and 17-year-olds, particularly in the area of inferential comprehension, are signaling deteriorating resources and instruction for those higher-order intellectual abilities that go beyond basic skills. If these trends continue into the 1980s, then it seems plausible that we are failing to give these students anything but basic skills.

Other panel members also voiced concern about the implications of the results for instruction in the secondary schools. Among these were Cooper, Fry, Yesner, Kuchinskas and Strickland. For example, Yesner observed:

Much of the "reading" that is taught and tested, though labeled functional and necessary for "survival," often seems irrelevant, mechanistic and dull. In fact, this emphasis may actually be contributing to an unsought-for end—disinterest and avoidance of reading and a seeking out and reliance on more immediate sources of pleasure like TV.

Strickland added:

As impressive as the steady growth of 9-year-olds has been, one must wonder if there is something that is or is not being done that militates against more enduring gains. We need to ask ourselves what can be done at the early stages of reading development to help produce more thoughtful, critical readers who are better prepared to shift to the more complex reading tasks of the middle grades.

Kuchinskas also remarked:

Federally supported programs targeted specifically into secondary schools should be added to existing programs. Careful examination of successful compensatory programs for secondary-school students should precede the application of funds.

Panelists generally concurred that the answer to the question, Are the nation's students reading better or worse now compared to 10 years ago? is that they are reading about the same except that the younger students, those assessed at age 9, are doing significantly better. However, beneath this relatively calm and stable picture they saw some disturbing trends. When mean performance is viewed in achievement classes (the lowest one-fourth and the highest one-fourth), a clear pattern emerges, indicating that the most significant gains are occurring in the lower achievement classes at ages 9, 13 and 17. Conversely, declines in the higher achievement classes are occurring at age 17. Commenting on this trend, Fry observed:

The disturbing part of these assessment results is that high school students, and particularly the best students, are not only failing to keep up with their counterparts of 10 years ago, they seem to be reading worse.

Reflecting on the nature of reading instruction in secondary schooling, Fry added:

If reading is taught in the high schools as a separate subject, it is usually taught to only remedial or low-achievement students. These data tend to show that the only high school group that is slightly ahead of 1970 performance levels are the low-achievement groups. Again, we see reaffirmed that students seem to learn what they are taught.

Panelists agreed that improvements noted in students at ages 9 and 13 among blacks, students who attend schools in disadvantaged-urban and rural communities are very likely the results of government and local compensatory programs over the past decade. However, panelists also concurred that educators and policy makers should not allow the progress of the nation's most talented students to be impeded by the emphasis on special programs for only the lowest achievers. Continued funding of reading education programs should be directed toward providing support to youngsters at all achievement levels.

TABLE A-1. Group Results, All Reading Exercises, Age 9, 1971, 1975 and 1980#

	Mean % Correct			Change in Mean % Correct			Mean Group Differences			Change in Mean Group Differences		
	1971	1975	1980	1971-75	1975-80	1971-80	1971	1975	1980	1971-75	1975-80	1971-80
Nation	63.98	65.25	67.89	1.27*	2.64*	3.91*						
Region												
Northeast	65.78	66.89	69.86	1.11	2.97*	4.08*	1.80*	1.64*	1.98*	-0.16	0.34	0.18
Southeast	59.00	62.04	66.50	3.04*	4.46*	7.50*	-4.98*	-3.21*	-1.39	1.77	1.82	3.59*
Central	66.61	67.52	68.85	0.91	1.33	2.24*	2.63*	2.27*	0.96	-0.36	-1.31	-1.67
West	63.35	63.92	66.72	0.57	2.80*	3.37*	-0.63	-1.33	-1.17	-0.70	0.16	-0.54
Sex												
Male	61.65	63.10	66.05	1.45*	2.95*	4.40*	-2.33*	-2.15*	-1.84*	0.18	0.31	0.49
Female	66.28	67.41	69.74	1.13*	2.33*	3.46*	2.30*	2.15*	1.85*	-0.15	-0.30	-0.45
Race/ethnicity												
White	66.44	67.00	69.26	0.56	2.26*	2.82*	2.46*	1.74*	1.38*	-0.72*	-0.36	-1.08*
Black	49.70	54.50	59.57	4.80*	5.07*	9.87*	-14.28*	-10.75*	-8.32*	3.53*	2.43*	5.96*
Parental education												
Not graduated high school	56.75	58.11	60.78	1.36	2.67*	4.03*	-7.23*	-7.14*	-7.10*	0.09	0.04	0.13
Graduated high school	64.69	66.16	67.12	1.47*	0.96	2.43*	0.71	0.91*	-0.77	0.20	-1.68*	-1.48*
Post high school	70.08	69.62	71.53	-0.46	1.91*	1.45*	6.10*	4.36*	3.64*	-1.74*	-0.72*	-2.46*
Type of community†												
Rural	60.89	62.96	66.93	2.07	3.97*	6.04*	-3.09*	-2.30*	-0.96	0.79	1.34	2.13
Disadvantaged urban	52.76	55.18	57.96	2.42	2.78	5.20*	-11.22*	-10.07*	-9.92*	1.15	0.15	1.30
Advantaged urban	71.57	71.29	73.14	-0.28	1.85*	1.57	7.59*	6.04*	5.25*	-1.55	-0.79	-2.34*
Size of community												
Big cities	62.62	60.79	65.98	-1.83	5.19*	3.36*	-1.36	-4.46*	-1.91*	-3.10*	2.55*	-0.55
Fringes around big cities	67.60	68.40	69.58	0.80	1.18	1.98	3.62*	3.15*	1.69*	-0.47	-1.46	-1.93
Medium cities	63.96	65.48	68.97	1.52	3.49*	5.01*	-0.02	0.23	1.08	0.25	0.85	1.10
Small places	62.89	65.34	67.62	2.45*	2.28*	4.73*	-1.09*	0.08	-0.27	1.17	-0.35	0.82*
Grade												
3	52.23	54.95	59.27	2.72*	4.32*	7.04*	-11.74*	-10.31*	-8.62*	1.43*	1.69*	3.12*
4	67.99	68.56	71.76	0.57	3.20*	3.77*	4.01*	3.31*	3.87*	-0.70*	0.56	-0.14

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*
†This population group represents about one-third of the sample.

TABLE A-2. Group Results, Literal Comprehension Exercises, Age 9, 1971, 1975 and 1980#

	Mean % Correct			Change in Mean % Correct			Mean Group Differences			Change in Mean Group Differences		
	1971	1975	1980	1971-75	1975-80	1971-80	1971	1975	1980	1971-75	1975-80	1971-80
Nation	65.74	66.79	69.60	1.05	2.81*	3.86*						
Region												
Northeast	67.69	68.59	71.63	0.90	3.04*	3.94*	1.94*	1.80*	2.03*	-0.14	0.23	0.09
Southeast	60.35	63.91	68.74	3.56*	4.83*	8.39*	-5.40*	-2.88*	-0.86	2.52	2.02	4.54*
Central	68.33	68.92	70.23	0.59	1.31	1.90	2.58*	2.13*	0.63	-0.45	-1.50	-1.95
West	65.36	65.16	68.40	-0.20	3.24*	3.04*	-0.38	-1.64*	-1.20	-1.26	0.44	-0.82
Sex												
Male	63.32	64.38	67.78	1.06	3.40*	4.46*	-2.43*	-2.41*	-1.82*	0.02	0.59	0.61
Female	68.14	69.22	71.44	1.08	2.22*	3.30*	2.40*	2.43*	1.84*	0.03	-0.59	-0.56
Race/ethnicity												
White	68.20	68.52	70.81	0.32	2.29*	2.61*	2.45*	1.73*	1.21*	-0.72*	-0.52	-1.24*
Black	51.53	56.10	62.46	4.57*	6.36*	10.93*	-14.22*	-10.69*	-7.14*	3.53*	3.55*	7.08*
Parental education												
Not graduated high school	59.13	59.57	64.08	0.44	4.51*	4.95*	-6.61*	-7.23*	-5.52*	-0.62	1.71	1.09
Graduated high school	65.75	67.80	68.87	2.05*	1.07	3.12*	0.00	1.00*	-0.73	1.00	-1.73*	-0.73
Post high school	71.67	70.78	72.93	-0.89	2.15*	1.26	5.92*	3.99*	3.33*	-1.93*	-0.66	-2.59*
Type of community†												
Rural	62.07	64.11	68.69	2.04	4.58*	6.62*	-3.68*	-2.69*	-0.91	0.99	1.78	2.77
Disadvantaged urban	54.33	57.92	61.17	3.59	3.25	6.84*	-11.42*	-8.88*	-6.43*	2.54	0.45	2.99
Advantaged urban	72.52	72.36	74.34	-0.16	1.98	1.82	6.77*	5.56*	4.74*	-1.21	-0.82	-2.03
Size of community												
Big cities	64.00	62.47	67.65	-1.53	5.18*	3.65*	-1.75	-4.32*	-1.95*	-2.57	2.37	-0.20
Fringes around big cities	69.39	70.13	71.01	0.74	0.88	1.62	3.65*	3.34*	1.41	-0.31	-1.93	-2.24*
Medium cities	66.05	67.31	71.85	1.26	4.54*	5.80*	0.30	0.52	2.25*	0.22	1.73	1.95
Small places	64.75	66.62	69.17	1.87*	2.55*	4.42*	-0.99	-0.17	-0.43	0.82	-0.26	0.56
Grade												
3	54.62	57.07	61.65	2.45*	4.58*	7.03*	-11.13*	-9.72*	-7.95*	1.41	1.77*	3.18*
4	69.58	70.00	73.22	0.42	3.22*	3.64*	3.84*	3.21*	3.62*	-0.63*	0.41	-0.22

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*
†This population group represents about one-third of the sample.

TABLE A-3. Group Results, Inferential Comprehension Exercises, Age 9, 1971, 1975 and 1980 #

	Mean % Correct			Change in Mean % Correct			Mean Group Differences			Change in Mean Group Differences		
	1971	1975	1980	1971-75	1975-80	1971-80	1971	1975	1980	1971-75	1975-80	1971-80
Nation	60.48	61.41	63.94	0.93	2.53*	3.46*						
Region												
Northeast	62.38	62.92	65.87	0.54	2.95*	3.49*	1.90*	1.50*	1.93*	-0.40	0.43	0.03
Southeast	55.75	57.87	62.29	2.12	4.42*	6.54*	-4.73*	-3.55*	-1.65*	1.18	1.90	3.08*
Central	62.96	63.58	65.00	0.62	1.42	2.04	2.49*	2.17*	1.05	-0.32	-1.12	-1.44
West	59.73	60.62	62.88	0.89	2.26	3.15*	-0.74	-0.79	-1.06	-0.05	-0.27	-0.32
Sex												
Male	58.27	59.62	62.10	1.35*	2.48*	3.83*	-2.21*	-1.79*	-1.85*	0.42	-0.06	0.36
Female	62.65	63.20	65.80	0.55	2.60*	3.15*	2.18*	1.79*	1.86*	-0.39	0.07	-0.32
Race/ethnicity												
White	62.87	63.16	65.38	0.29	2.22*	2.51*	2.39*	1.75*	1.44*	-0.64*	-0.31	-0.95*
Black	46.87	50.55	55.22	3.68*	4.67*	8.35*	-13.61*	-10.86*	-8.72*	2.75*	2.14*	4.89*
Parental education												
Not graduated high school	53.26	54.66	55.22	1.40	0.56	1.96	-7.22*	-6.75*	-8.72*	0.47	-1.97	-1.50
Graduated high school	61.37	62.44	63.33	1.07	0.89	1.96*	0.90*	1.03*	-0.61	0.13	-1.64*	-1.51*
Post high school	66.53	65.86	67.75	-0.67	1.89*	1.22	6.05*	4.45*	3.80*	-1.60*	-0.65	-2.25*
Type of community†												
Rural	57.68	59.35	63.03	1.67	3.68*	5.35*	-2.79*	-2.06	-0.91	0.73	1.15	1.88
Disadvantaged urban	49.58	50.90	53.69	1.32	2.79	4.11*	-10.89*	-10.51*	-10.26*	0.38	0.25	0.63
Advantaged urban	68.40	67.78	69.01	-0.62	1.23	0.61	7.92*	6.36*	5.06*	-1.56	-1.30	-2.86*
Size of community												
Big cities	59.38	56.87	61.91	-2.51	5.04*	2.53	-1.10	-4.54*	-2.03*	-3.44*	2.51*	-0.93
Fringes around big cities	63.88	64.39	65.81	0.51	1.42	1.93	3.40*	2.98*	1.87*	-0.42	-1.11	-1.53
Medium cities	60.16	61.47	64.40	1.31	2.93*	4.24*	-0.31	0.06	0.46	0.37	0.40	0.77
Small places	59.51	61.68	63.80	2.17*	2.12*	4.29*	-0.97	0.27	-0.14	1.24	-0.41	0.83
Grade												
3	49.04	51.36	55.51	2.32*	4.15*	6.47*	-11.44*	-10.05*	-8.43*	1.39*	1.62*	3.01*
4	64.35	64.58	67.71	0.23	3.13*	3.36*	3.88*	3.17*	3.77*	-0.71*	0.60	-0.11

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*
†This population group represents about one-third of the sample.

TABLE A-4. Group Results, Reference Skills Exercises, Age 9, 1971, 1975 and 1980#

	Mean % Correct			Change in Mean % Correct			Mean Group Differences			Change in Mean Group Differences		
	1971	1975	1980	1971-75	1975-80	1971-80	1971	1975	1980	1971-75	1975-80	1971-80
Nation	64.78	67.05	69.60	2.27*	2.55*	4.82*						
Region												
Northeast	65.50	68.48	71.19	2.98*	2.71	5.69*	0.72	1.44*	1.59	0.72	0.15	0.87
Southeast	60.91	64.35	68.28	3.44	3.93*	7.37*	-3.88*	-2.70*	-1.32	1.18	1.38	2.56
Central	67.95	69.93	71.11	1.98	1.18	3.16*	3.17*	2.88*	1.51*	-0.29	-1.37	-1.66
West	63.54	64.84	68.04	1.30	3.20*	4.50*	-1.25	-2.21*	-1.56	-0.96	0.65	-0.31
Sex												
Male	62.21	64.37	67.40	2.16*	3.03*	5.19*	-2.58*	-2.68*	-2.20*	-0.10	0.48	0.38
Female	67.36	69.69	71.80	2.33*	2.11*	4.44*	2.58*	2.65*	2.20*	0.07	-0.45	-0.38
Race/ethnicity												
White	67.36	68.78	71.29	1.42	2.51*	3.93*	2.57*	1.73*	1.69*	-0.84*	-0.04	-0.88*
Black	49.44	56.52	59.16	7.08*	2.64*	9.72*	-15.34*	-10.52*	-10.44*	4.82*	0.08	4.90*
Parental education												
Not graduated high school	56.15	59.35	62.72	3.20	3.37*	6.57*	-8.64*	-7.70*	-6.88*	0.94	0.82	1.76
Graduated high school	66.63	67.35	68.02	0.72	0.67	1.39	1.85*	0.31	-1.57*	-1.54*	-1.88*	-3.42*
Post high school	71.63	72.42	74.27	0.79	1.85*	2.64*	6.85*	5.38*	4.68*	-1.47*	-0.70	-2.17*
Type of community†												
Rural	60.87	64.62	68.15	3.75	3.53	7.28*	-3.91*	-2.42	-1.45	1.49	0.97	2.46
Disadvantaged urban	52.46	55.47	56.47	3.01	1.00	4.01	-12.33*	-11.58*	-13.13*	0.75	-1.55	-0.80
Advantaged urban	72.53	73.60	76.98	1.07	3.38*	4.45*	7.75*	6.56*	7.38*	-1.19	0.82	-0.37
Size of community												
Big cities	62.57	62.41	68.17	-0.16	5.76*	5.60*	-2.21	-4.64*	-.43	-2.43	3.21*	0.78
Fringes around big cities	68.82	70.56	71.17	1.74	0.61	2.35	4.04*	3.52*	1.57	-0.52	-1.95	-2.47
Medium cities	66.49	67.36	69.96	0.87	2.60	3.47	1.71	0.31	0.36	-1.40	0.05	-1.35
Small places	63.16	66.99	69.39	3.83*	2.40*	6.23*	-1.62*	-0.06	-0.21	1.56	-0.15	1.41
Grade												
3	50.05	54.38	58.22	4.33*	3.84*	8.17*	-14.74*	-12.67*	-11.38*	2.07*	1.29	3.36*
4	69.78	71.01	74.54	1.23	3.53*	4.76*	5.00*	3.97*	4.95*	-1.03*	0.98	-0.05

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*
†This population group represents about one-third of the sample.

TABLE A-5. Group Results, All Reading Exercises, Age 13, 1970, 1974 and 1979#

	Mean % Correct			Change in Mean % Correct			Mean Group Differences			Change in Mean Group Differences		
	1970	1974	1979	1970-74	1974-79	1970-79	1970	1974	1979	1970-74	1974-79	1970-79
Nation	60.01	59.91	60.78	-0.10	0.87	0.77						
Region												
Northeast	62.17	60.90	61.67	-1.27	0.77	-0.50	2.16*	0.99	0.89	-1.17	-0.10	-1.27
Southeast	55.31	56.79	57.87	1.48	1.08	2.56	-4.70*	-3.12*	-2.91*	1.58	0.21	1.79
Central	62.56	62.51	63.41	-0.05	0.90	0.85	2.55*	2.60*	2.63*	0.05	0.03	0.08
West	59.40	58.85	59.79	-0.55	0.94	0.39	-0.61	-1.06*	-0.99	-0.45	0.07	-0.38
Sex												
Male	57.75	57.63	58.84	-0.12	1.21	1.09	-2.26*	-2.28*	-1.94*	-0.02	0.34	0.32
Female	62.29	62.19	62.61	-0.10	0.42	0.32	2.28*	2.28*	1.83*	0.00	-0.45	-0.45
Race/ethnicity												
White	62.60	61.91	62.64	-0.69	0.73	0.04	2.59*	2.00*	1.86*	-0.59	-0.14	-0.73
Black	45.44	46.45	49.61	1.01	3.16*	4.17*	-14.57*	-13.46*	-11.17*	1.11	2.29	3.40*
Parental education												
Not graduated high school	52.70	52.52	52.88	-0.18	0.36	0.18	-7.31*	-7.40*	-7.90*	-0.09	-0.50	-0.59
Graduated high school	60.40	59.46	59.52	-0.94	0.06	-0.88	0.39	-0.45	-1.26*	-0.84*	-0.81	-1.65*
Post high school	66.42	65.99	65.44	-0.43	-0.55	-0.98	6.41*	6.08*	4.66*	-0.33	-1.42*	-1.75*
Type of community†												
Rural	56.82	57.25	58.65	0.43	1.40	1.83	-3.19*	-2.67*	-2.13	0.52	0.54	1.06
Disadvantaged urban	49.83	48.56	53.40	-1.27	4.84	3.57	-10.18*	-11.35*	-7.38*	-1.17	3.97	2.80
Disadvantaged urban	67.14	66.67	67.93	-0.47	1.26	0.79	7.13*	6.76*	7.15*	-0.37	0.39	0.02
Size of community												
Big cities	58.84	54.89	57.48	-3.95*	2.59	-1.36	-1.16	-5.03*	-3.30*	-3.87*	1.73	-2.14
Fringes around big cities	62.95	63.63	62.85	0.68	-0.78	-0.10	2.94*	3.71*	2.07*	0.77	-1.64	-0.87
Medium cities	59.55	58.72	60.62	-0.83	1.90	1.07	-0.46	-1.19	-0.16	-0.73	1.03	0.30
Small places	59.26	60.09	61.06	0.83	0.97	1.80	-0.75	0.18	0.27	0.93	0.09	1.02
Grade												
7	50.70	51.25	53.30	0.55	2.05*	2.60*	-9.31*	-8.66*	-7.48*	0.65	1.18	1.83*
8	64.34	63.67	64.27	-0.67	0.60	-0.07	4.33*	3.76*	3.49*	-0.57	-0.27	-0.84*

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*
†This population group represents about one-third of the sample.

TABLE A-6. Group Results, Literal Comprehension Exercises, Age 13, 1970, 1974 and 1979#

	Mean % Correct			Change in Mean % Correct			Mean Group Differences			Change in Mean Group Differences		
	1970	1974	1979	1970-74	1974-79	1970-79	1970	1974	1979	1970-74	1974-79	1970-79
Nation	61.13	61.84	62.74	0.71	0.90	1.61*						
Region												
Northeast	63.65	62.49	63.31	-1.16	0.82	-0.34	2.52*	0.64	0.57	-1.88	-0.07	-1.95
Southeast	56.02	58.42	59.79	2.40	1.37	3.77*	-5.11*	-3.42*	-2.95*	1.69	0.47	2.16
Central	63.84	64.65	65.62	0.81	0.97	1.78	2.71*	2.81*	2.89*	0.10	0.08	0.18
West	60.38	61.16	61.95	0.78	0.79	1.57	-0.75	-0.69	-0.79	0.06	-0.10	-0.04
Sex												
Male	58.65	59.32	60.45	0.67	1.13	1.80*	-2.48*	-2.52*	-2.29*	-0.04	0.23	0.19
Female	63.62	64.36	64.89	0.74	0.53	1.27	2.49*	2.52*	2.15*	0.03	-0.37	-0.34
Race/ethnicity												
White	63.79	63.89	64.57	0.10	0.68	0.78	2.67*	2.05*	1.83*	-0.62	-0.22	-0.84*
Black	46.26	48.13	51.59	1.87	3.46*	5.33*	-14.86*	-13.71*	-11.15*	1.15	2.56	3.71*
Parental education												
Not graduated high school	53.31	54.61	55.07	1.30	0.46	1.76	-7.82*	-7.24*	-7.67*	0.58	-0.43	0.15
Graduated high school	61.83	61.40	61.64	-0.43	0.24	-0.19	0.71*	-0.45	-1.10*	-1.16*	-0.65	-1.81*
Post high school	67.45	67.86	67.25	0.41	-0.61	-0.20	6.32*	6.02*	4.51*	-0.30	-1.51*	-1.81*
Type of community†												
Rural	57.20	59.03	60.13	1.83	1.10	2.93	-3.93*	-2.82*	-2.60	1.11	0.22	1.33
Disadvantaged urban	51.80	50.64	55.86	-1.16	5.22*	4.06	-9.32*	-11.21*	-6.87*	-1.89	4.34	2.45
Advantaged urban	68.16	68.21	69.25	0.05	1.04	1.09	7.03*	6.36*	6.51*	-0.67	0.15	-0.52
Size of community												
Big cities	60.26	56.57	59.80	-3.69*	3.23	-0.46	-0.87	-5.28*	-2.94*	-4.41*	2.34	-2.07
Fringes around big cities	64.19	65.58	64.72	1.39	-0.86	0.53	3.06*	3.73*	1.98	0.67	-1.75	-1.08
Medium cities	60.29	60.51	62.44	0.22	1.93	2.15	-0.84	-1.33	-0.30	-0.49	1.03	0.54
Small places	60.24	62.14	62.91	1.90*	0.77	2.67*	-0.88	0.30	0.17	1.18	-0.13	1.05
Grade												
7	51.43	52.96	54.65	1.53*	1.69	3.22*	-9.69*	-8.89*	-8.08*	0.80	0.81	1.61
8	65.71	65.68	66.39	-0.03	0.71	0.68	4.58*	3.83*	3.65*	-0.75*	-0.18	-0.93*

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*
†This population group represents about one-third of the sample.

TABLE A-7. Group Results, Inferential Comprehension Exercises, Age 13, 1970, 1974 and 1979#

	Mean % Correct			Change in Mean % Correct			Mean Group Differences			Change in Mean Group Differences		
	1970	1974	1979	1970-74	1974-79	1970-79	1970	1974	1979	1970-74	1974-79	1970-79
Nation	56.07	55.28	55.46	-0.79	0.18	-0.61						
Region												
Northeast	57.85	56.33	56.47	-1.52	0.14	-1.38	1.78*	1.05	1.01	-0.73	-0.04	-0.77
Southeast	52.43	53.09	52.98	0.66	-0.11	0.55	-3.63*	-2.19*	-2.48*	1.44	-0.29	1.15
Central	58.03	57.42	57.15	-0.61	0.27	-0.88	1.97*	2.14*	1.70*	0.17	-0.44	-0.27
West	55.48	53.86	54.86	-1.62*	1.00	-0.62	-0.59	-1.42*	-0.59	-0.83	0.83	0.00
Sex												
Male	53.99	53.04	53.70	-0.95	0.66	-0.29	-2.08*	-2.25*	-1.75*	-0.17	0.50	0.33
Female	58.15	57.53	57.13	-0.62	-0.40	-1.02	2.08*	2.25*	1.67*	0.17	-0.58*	-0.41
Race/ethnicity												
White	58.37	56.97	57.03	-1.40*	0.06	-1.34*	2.31*	1.69*	1.57*	-0.62*	-0.12	-0.74*
Black	43.22	43.99	46.00	0.77	2.01	2.78*	-12.84*	-11.30*	-9.45*	1.54	1.85	3.39*
Parental education												
Not graduated high school	49.83	48.75	47.83	-1.08	-0.92	-2.00*	-6.23*	-6.53*	-7.63*	-0.30	-1.10	-1.40
Graduated high school	55.80	54.55	53.86	-1.25*	-0.69	-1.94*	-0.26	-0.73*	-1.60*	-0.47	-0.87	-1.34*
Post high school	62.46	60.94	60.04	-1.52*	-0.90	-2.42*	6.40*	5.66*	4.59*	-0.74	-1.07*	-1.81*
Type of community†												
Rural	53.91	53.50	53.98	-0.41	0.48	0.07	-2.16	-1.78	-1.48	0.38	0.30	0.68
Disadvantaged urban	45.72	45.29	49.40	-0.43	4.11	3.68	-10.35*	-9.99*	-6.05*	0.36	3.94	4.30
Advantaged urban	63.27	61.79	62.84	-1.48	1.05	-0.43	7.21*	6.51*	7.39*	-0.70	0.88	0.18
Size of community												
Big cities	54.91	51.21	52.54	-3.70*	1.33	-2.37	-1.16	-4.07*	-2.92*	-2.91*	1.15	-1.76
Fringes around big cities	58.64	58.41	57.61	-0.23	-0.80	-1.03	2.58*	3.12*	2.16*	0.54	-0.96	-0.42
Medium cities	55.80	54.74	55.13	-1.06	0.39	-0.67	-0.26	-0.54	-0.33	-0.28	0.21	-0.07
Small places	55.47	55.21	55.58	-0.26	0.37	0.11	-0.59	-0.07	0.13	0.52	0.20	0.72
Grade												
7	47.67	47.32	48.98	-0.35	1.66	1.31	-8.39*	-7.96*	-6.48*	0.43	1.48*	1.91*
8	59.84	58.70	58.57	-1.14*	-0.13	-1.27	3.78*	3.42*	3.12*	-0.36	-0.30	-0.66*

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*
†This population group represents about one-third of the sample.

TABLE A-8. Group Results, Reference Skills Exercises, Age 13, 1970, 1974 and 1979#

	Mean % Correct			Change in Mean % Correct			Mean Group Differences			Change in Mean Group Differences		
	1970	1974	1979	1970-74	1974-79	1970-79	1970	1974	1979	1970-74	1974-79	1970-79
Nation	65.81	64.11	66.72	-1.70*	2.61*	0.91						
Region												
Northeast	67.43	66.42	68.60	-1.01	2.18	1.17	1.62	2.31*	1.87	0.69	-0.44	0.25
Southeast	59.98	59.78	62.81	-0.20	3.03	2.83	-5.83*	-4.33*	-3.92*	1.50	0.41	1.91
Central	69.21	67.07	70.79	-2.14	3.72*	1.58	3.41*	2.96*	4.07*	-0.45	1.11	0.66
West	65.73	62.42	63.86	-3.31*	1.44	-1.87	-0.08	-1.69*	-2.87	-1.61	-1.18	-2.79
Sex												
Male	63.98	62.73	65.78	-1.25	3.05*	1.80	-1.83*	-1.38*	-0.95*	0.45	0.43	0.88
Female	67.75	65.49	67.62	-2.26*	2.13	-0.13	1.94*	1.38*	0.89*	-0.56	-0.49	-1.05
Race/ethnicity												
White	68.83	66.72	69.45	-2.11*	2.73*	0.62	3.02*	2.61*	2.73*	-0.41	0.12	-0.29
Black	47.87	45.91	50.90	-1.96	4.99*	3.03	-17.94*	-18.19*	-15.82*	-0.25	2.37	2.12
Parental education												
Not graduated high school	57.75	53.74	57.12	-4.01*	3.38*	-0.63	-8.06*	-10.37*	-9.60*	-2.31*	0.77	-1.54
Graduated high school	66.58	64.38	65.66	-2.20*	1.28	-0.92	0.77	0.27	-1.06	-0.50	-1.33	-1.83*
Post high school	72.66	71.53	72.22	-1.13	0.69	-0.44	6.85*	7.43*	5.50*	0.58	-1.93*	-1.35
Type of community†												
Rural	63.02	59.71	64.86	-3.31	5.15	1.84	-2.79	-4.39*	-1.87	-1.60	2.52	0.92
Disadvantaged urban	52.44	48.52	53.67	-3.92	5.15	1.23	-13.37*	-15.59*	-13.06*	-2.22	2.53	0.31
Advantaged urban	73.17	73.18	75.91	0.01	2.73	2.74	7.36*	9.07*	9.19*	1.71	0.12	1.83
Size of community												
Big cities	63.37	57.57	60.88	-5.80*	3.31	-2.49	-2.44	-6.54*	-5.84*	-4.10*	0.70	-3.40
Fringes around big cities	69.22	69.30	68.90	0.08	-0.40	-0.32	3.41*	5.19*	2.18	1.78	-3.01	-1.23
Medium cities	66.46	61.78	67.59	-4.68*	5.81*	1.13	0.65	-2.33	0.87	-2.98	3.20	0.22
Small places	65.22	64.42	67.85	-0.80	3.43*	2.63	-0.59	0.31	1.12	0.90	0.81	1.71
Grade												
7	55.66	54.54	59.09	-1.12	4.55*	3.43	-10.15*	-9.57*	-7.63*	0.58	1.94	2.52
8	70.55	68.47	70.54	-2.08*	2.07*	-0.01	4.74*	4.36*	3.82*	-0.38	-0.54	-0.92

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*
†This population group represents about one-third of the sample.

TABLE A-9. Group Results, All Reading Exercises, Age 17 in School, 1971, 1975 and 1980#

	Mean % Correct			Change in Mean % Correct			Mean Group Differences			Change in Mean Group Differences		
	1971	1975	1980	1971-75	1975-80	1971-80	1971	1975	1980	1971-75	1975-80	1971-80
Nation	68.94	68.98	68.23	0.04	-0.75	-0.71						
Region												
Northeast	70.80	70.24	68.41	-0.58	-1.81	-2.39	1.86*	1.23*	0.17	-0.63	-1.06	-1.69
Southeast	63.61	65.54	65.30	1.93	-0.24	1.69	-5.33*	-3.44*	-2.93*	1.89	0.51	2.40
Central	71.38	71.41	70.34	0.03	-1.07	-1.04	2.43*	2.43*	2.11*	0.00	-0.32	-0.32
West	68.29	67.53	68.24	-0.76	0.71	-0.05	-0.66	-1.46*	0.00	-0.80	1.46	0.66
Sex												
Male	67.17	67.24	66.86	0.07	-0.38	-0.31	-1.77*	-1.74*	-1.37*	0.03	0.37	0.40
Female	70.65	70.64	69.66	-0.01	-0.98	-0.99	1.70*	1.65*	1.43*	-0.05	-0.22	-0.27
Race/ethnicity												
White	71.24	71.21	70.57	-0.03	-0.64	-0.67	2.29*	2.22*	2.33*	-0.07	0.11	0.04
Black	51.68	52.14	52.20	0.46	0.06	0.52	-17.27*	-16.84*	-16.04*	0.43	0.80	1.23
Parental education												
Not graduated high school	60.50	60.63	59.20	0.13	-1.43	-1.30	-8.44*	-8.36*	-9.03*	0.08	-0.67	-0.59
Graduated high school	68.20	67.67	65.63	-0.53	-2.04*	-2.57*	-0.74*	-1.32*	-2.60*	-0.58	-1.28*	-1.86*
Post high school	74.81	74.27	73.08	-0.54	-1.19*	-1.73*	5.87*	5.29*	4.85*	-0.58	-0.44	-1.02*
Type of community†												
Rural	66.17	67.90	65.08	1.73	-2.82	-1.09	-2.77	-1.09	-3.16*	1.68	-2.07	-0.39
Disadvantaged urban	60.68	59.28	59.24	-1.40	-0.04	-1.44	-8.27*	-9.70*	-9.00*	-1.43	0.70	-0.73
Advantaged urban	75.75	76.01	73.53	0.26	-2.48*	-2.22	6.80*	7.02*	5.30*	0.22	-1.72	-1.50
Size of community												
Big cities	67.66	63.82	64.49	-3.84*	0.67	-3.17	-1.29	-5.17*	-3.75*	-3.88*	1.42	-2.46
Fringes around big cities	71.97	71.50	70.77	-0.47	-0.73	-1.20	3.03*	2.52*	2.53*	-0.51	0.01	-0.50
Medium cities	69.53	69.27	68.37	-0.26	-0.90	-1.16	0.59	0.29	0.14	-0.30	-0.15	-0.45
Small places	67.72	69.31	68.41	1.59*	-0.90	0.69	-1.22*	0.32	0.17	1.54*	-0.15	1.39
Grade												
10	54.43	55.10	54.59	0.67	-0.51	0.16	-14.51*	-13.89*	-13.65*	0.62	0.24	0.86
11	71.07	71.38	70.45	0.31	-0.93	-0.62	2.13*	2.39*	2.22*	0.26	-0.17	0.09
12	74.90	73.98	73.53	-0.92	-0.45	-1.37	5.96*	5.00*	5.30*	-0.96	0.30	-0.66

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*
†This population group represents about one-third of the sample.

TABLE A-10. Group Results, Literal Comprehension Exercises, Age 17 in School, 1971, 1975 and 1980#

	Mean % Correct			Change in Mean % Correct			Mean Group Differences			Change in Mean Group Differences		
	1971	1975	1980	1971-75	1975-80	1971-80	1971	1975	1980	1971-75	1975-80	1971-80
Nation	72.15	72.68	71.98	0.53	-0.70	-0.17						
Region												
Northeast	73.72	73.55	71.69	-0.17	-1.86	-2.03	1.56	0.87	-0.30	-0.69	-1.17	-1.86
Southeast	66.95	69.48	69.41	2.53*	-0.07	2.46	-5.20*	-3.20*	-2.58*	2.00	0.62	2.62
Central	74.59	75.13	74.23	0.54	-0.90	-0.36	2.44*	2.45*	2.25*	0.01	-0.20	-0.19
West	71.70	71.39	71.91	-0.31	0.52	0.21	-0.46	-1.29*	-0.07	-0.83	1.22	0.39
Sex												
Male	70.29	70.59	70.43	0.30	-0.16	0.14	-1.86*	-2.09*	-1.55*	-0.23	0.54	0.31
Female	73.95	74.66	73.60	0.71	-1.06	-0.35	1.79*	1.98*	1.62*	0.19	-0.36	-0.17
Race/ethnicity												
White	74.21	74.81	74.08	0.60	-0.73	-0.13	2.06*	2.13*	2.09*	0.07	-0.04	0.03
Black	56.98	56.65	57.48	-0.33	0.83	0.50	-15.18*	-16.03*	-14.51*	-0.85	1.52	0.67
Parental education												
Not graduated high school	64.95	65.28	64.16	0.33	-1.12	-0.79	-7.20*	-7.40*	-7.83*	-0.20	-0.43	-0.63
Graduated high school	71.49	71.51	69.85	0.02	-1.66*	-1.64*	-0.66	-1.17*	-2.13*	-0.51	-0.96	-1.47*
Post high school	77.29	77.50	76.10	0.21	-1.40*	-1.19	5.13*	4.82*	4.12*	-0.31	-0.70	-1.01*
Type of community†												
Rural	70.57	71.86	69.91	1.29	-1.95	-0.66	-1.58	-0.82	-2.07	0.76	-1.25	-0.49
Disadvantaged urban	64.88	63.89	63.65	-0.99	-0.24	-1.23	-7.28*	-8.79*	-8.33*	-1.51	0.46	-1.05
Advantaged urban	78.39	79.21	76.13	0.82	-3.08*	-2.26	6.23*	6.53*	4.15*	0.30	-2.38*	-2.08
Size of community												
Big cities	71.05	68.07	68.34	-2.98*	0.27	-2.71	-1.10	-4.61*	-3.64*	-3.51*	0.97	-2.54
Fringes around big cities	74.52	75.06	73.69	0.54	-1.37	-0.83	2.37*	2.38*	1.71	0.01	-0.67	-0.66
Medium cities	73.53	72.83	72.46	-0.70	-0.37	-1.07	1.38	0.15	0.47	-1.23	0.32	-0.91
Small places	70.93	72.90	72.39	1.97*	-0.51	1.46	-1.22*	0.22	0.40	1.44*	0.18	1.62*
Grade												
10	58.63	59.39	59.12	0.76	-0.27	0.49	-13.52*	-13.29*	-12.86*	0.23	0.43	0.66
11	74.16	75.01	74.03	0.85	-0.98	-0.13	2.01*	2.33*	2.04*	0.32	-0.29	0.03
12	77.61	77.42	77.50	-0.19	0.08	-0.11	5.46*	4.74*	5.52*	-0.72	0.78	0.06

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*
†This population group represents about one-third of the sample.

TABLE A-11. Group Results, Inferential Comprehension Exercises, Age 17 In School, 1971, 1975 and 1980#

	Mean % Correct			Change in Mean % Correct			Mean Group Differences			Change in Mean Group Differences		
	1971	1975	1980	1971-75	1975-80	1971-80	1971	1975	1980	1971-75	1975-80	1971-80
Nation	64.24	63.34	62.11	-0.90	-1.23	-2.13*						
Region												
Northeast	66.29	64.76	62.63	-1.53	-2.13	-3.66*	2.05*	1.42*	0.52	-0.63	-0.90	-1.53
Southeast	59.40	60.49	59.39	1.09	-1.10	-0.01	-4.83*	-2.85*	-2.72*	1.98	0.13	2.11
Central	66.36	65.34	63.83	-1.02	-1.51	-2.53	2.12*	2.00*	1.72	-0.12	-0.28	-0.40
West	63.32	61.75	61.98	-1.57	0.23	-1.34	-0.91	-1.59*	-0.13	-0.68	1.46	0.78
Sex												
Male	61.95	61.70	60.50	-0.25	-1.20	-1.45	-2.29*	-1.64*	-1.61*	0.65	0.03	0.68
Female	66.42	64.91	63.77	-1.51*	-1.14	-2.65*	2.19*	1.57*	1.66*	-0.62	0.09	-0.53
Race/ethnicity												
White	66.52	65.45	64.50	-1.07*	-0.95	-2.02*	2.28*	2.11*	2.39*	-0.17	0.28	0.11
Black	46.96	47.48	45.89	0.52	-1.59	-1.07	-17.28*	-15.86*	-16.22*	1.42	-0.36	1.06
Parental education												
Not graduated high school	55.54	55.08	52.98	-0.46	-2.10	-2.56*	-8.70*	-8.26*	-9.13*	0.44	-0.87	-0.43
Graduated high school	63.03	61.84	58.98	-1.19	-2.86*	-4.05*	-1.21*	-1.50*	-3.13*	-0.29	-1.63*	-1.92*
Post high school	70.48	68.65	67.40	-1.83*	-1.25	-3.08*	6.24*	5.31*	5.29*	-0.93*	-0.02	-0.95*
Type of community†												
Rural	60.57	62.44	58.34	1.87	-4.10*	-2.23	-3.67*	-0.90	-3.77*	2.77	-2.87	-0.10
Disadvantaged urban	55.20	53.03	52.77	-2.17	-0.26	-2.43	-9.04*	-10.31*	-9.34*	-1.27	0.97	-0.30
Advantaged urban	71.00	70.31	68.48	-0.69	-1.83	-2.52	6.77*	6.98*	6.37*	0.21	-0.61	-0.40
Size of community												
Big cities	62.52	57.94	58.55	-4.58*	0.61	-3.97	-1.72	-5.40*	-3.55	-3.68*	1.85	-1.83
Fringes around big cities	67.77	65.23	65.04	-2.54*	-0.19	-2.73	3.53*	1.89*	2.93*	-1.64	1.04	-0.60
Medium cities	63.98	63.94	61.73	-0.04	-2.21*	-2.25	-0.26	0.60	-0.38	0.86	-0.98	-0.12
Small places	63.28	64.01	62.17	0.73	-1.84	-1.11	-0.96	0.67	0.07	1.63*	-0.60	1.03
Grade												
10	49.37	49.57	48.68	0.20	-0.89	-0.69	-14.87*	-13.77*	-13.42*	1.10	0.35	1.45
11	66.35	65.63	64.36	-0.72	-1.27	-1.99*	2.11*	2.29*	2.25*	0.18	-0.04	0.14
12	70.39	68.47	66.81	-1.92*	-1.66	-3.58*	6.16*	5.13*	4.70*	-1.03	-0.43	-1.46

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*
†This population group represents about one-third of the sample.

TABLE A-12. Group Results, Reference Skills Exercises, Age 17 In School, 1971, 1975 and 1980#

	Mean % Correct			Change in Mean % Correct			Mean Group Differences			Change in Mean Group Differences		
	1971	1975	1980	1971-75	1975-80	1971-80	1971	1975	1980	1971-75	1975-80	1971-80
Nation	69.43	70.06	70.23	0.63	0.17	0.80						
Region												
Northeast	71.78	72.02	71.12	0.24	-0.90	-0.66	2.35	1.96*	0.89	-0.39	-1.07	-1.46
Southeast	62.56	64.51	65.68	1.95	1.17	3.12	-6.87*	-5.55*	-4.55*	1.32	1.00	2.32
Central	72.55	73.40	72.76	0.85	-0.64	0.21	3.12*	3.33*	2.53	0.21	-0.80	-0.59
West	68.71	68.36	70.76	-0.35	2.40	2.05	-0.72	-1.71	0.53	-0.99	2.24	1.25
Sex												
Male	69.11	69.20	69.98	0.09	0.78	0.87	-0.32	-0.86*	-0.25	-0.54	0.61	0.07
Female	69.75	70.89	70.52	1.14	-0.37	0.77	0.32	0.83*	0.29	0.51	-0.54	-0.03
Race/ethnicity												
White	72.52	72.84	73.20	0.32	0.36	0.68	3.09*	2.77*	2.97*	-0.32	0.20	-0.12
Black	45.55	48.38	49.76	2.83	1.38	4.21	-23.88*	-21.68*	-20.47*	2.20	1.21	3.41
Parental education												
Not graduated high school	57.61	58.42	57.59	0.81	-0.83	-0.02	-11.82*	-11.64*	-12.64*	0.18	-1.00	-0.82
Graduated high school	69.50	68.67	67.32	-0.83	-1.35	-2.18	0.07	-1.39*	-2.91*	-1.46	-1.52	-2.98*
Post high school	76.81	76.81	76.40	0.00	-0.41	-0.41	7.38*	6.75*	6.16*	-0.63	0.59	-1.22
Type of community†												
Rural	64.92	67.70	65.02	2.78	-2.68	0.10	-4.51*	-2.36	-5.21*	2.15	-2.85	-0.70
Disadvantaged urban	59.77	58.85	59.88	-0.92	1.03	0.11	-9.66*	-11.21*	-10.35*	-1.55	0.86	-0.69
Advantaged urban	78.13	78.74	76.75	0.61	-1.99	-1.38	8.70*	8.68*	6.52*	-0.02	-2.16	-2.18
Size of community												
Big cities	68.53	63.64	65.71	-4.89*	2.07	-2.82	-0.90	-6.42*	-4.52	-5.52*	1.90	-3.62
Fringes around big cities	73.40	74.43	74.50	1.03	0.07	1.10	3.97*	4.36*	4.27*	0.39	-0.09	0.30
Medium cities	69.45	70.06	70.48	0.61	0.42	1.03	0.02	0.00	0.25	-0.02	0.25	0.23
Small places	67.62	69.91	69.90	2.29	-0.01	2.28	-1.81*	-0.16	-0.33	1.65	-0.17	1.48
Grade												
10	52.57	54.00	53.58	1.43	-0.42	1.01	-16.86*	-16.06*	-16.65*	0.80	-0.59	0.21
11	71.96	72.90	72.95	0.94	0.05	0.99	2.53*	2.83*	2.72*	0.30	-0.11	0.19
12	76.51	75.59	76.17	-0.92	0.58	-0.34	7.08*	5.53*	5.94*	-1.55	0.41	-1.14

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*
†This population group represents about one-third of the sample.

TABLE B-1. National and Group Mean Percentages of Correct Responses on 9 Exercises Administered to 9- and 13-Year-Olds in Three Reading Assessments#

	Age 9						Age 13					
	1971	Change 1971-75	1975	Change 1975-80	1980	Change 1971-80	1970	Change 1970-74	1974	Change 1974-79	1979	Change 1970-79
Nation	61.0%	0.2	61.2%	3.5*	64.6%	3.6*	76.1%	1.0	77.1%	1.2*	78.2%	2.1*
Region												
Northeast	62.7	0.5	63.2	2.5	65.7	3.0*	78.4	-1.4	77.0	1.8	78.9	0.4
Southeast	54.8	2.2	57.0	6.3*	63.2	8.4*	71.1	3.9*	75.0	0.8	75.8	4.6*
Central	64.5	-1.0	63.5	2.6	66.2	1.7	77.8	1.2	79.0	0.8	79.8	2.0
West	60.5	-0.4	60.2	3.6*	63.8	3.2*	76.4	0.5	76.9	1.4	78.3	1.9
Sex												
Male	59.4	0.1	59.5	3.7*	63.1	3.8*	75.0	1.0	76.0	1.6*	77.5	2.5*
Female	62.6	0.3	62.9	3.3*	66.2	3.6*	77.2	1.0	78.2	0.7	78.9	1.7*
Race/ethnicity												
White	63.7	-0.7	63.1	3.1*	66.2	2.5*	78.2	0.4	78.6	0.8	79.5	1.2*
Black	44.8	4.6*	49.4	5.6*	55.0	10.2*	63.8	3.2*	67.0	4.0*	71.0	7.2*
Parental education												
Not graduated high school	53.1	-0.2	52.9	2.9	55.8	2.7	70.2	1.6	71.9	0.1	72.0	1.8
Graduated high school	61.2	1.2	62.4	0.5	62.9	1.7	77.0	0.2	77.2	0.6	77.7	0.8
Post high school	67.7	-1.5	66.2	3.0*	69.1	1.5	81.2	-0.1	81.1	0.2	81.3	0.0
Type of community†												
Rural	57.9	-0.2	57.7	5.8*	63.5	5.6*	71.6	4.4*	76.0	0.5	76.5	4.9*
Disadvantaged urban	48.6	1.8	50.4	2.6	53.0	4.3	68.9	-0.2	68.7	4.3	73.0	4.1
Advantaged urban	68.5	-0.2	68.3	4.0*	72.3	3.8*	82.6	-1.1	81.5	0.6	82.1	-0.5
Size of community												
Big cities	59.3	-3.1	56.2	6.7*	62.9	3.6	76.5	-2.8	73.7	1.9	75.5	-1.0
Fringes around big cities	64.8	0.2	64.9	1.1	66.0	1.2	78.1	1.4	79.6	-0.4	79.2	1.0
Medium cities	61.0	0.5	61.5	4.7*	66.2	5.2*	75.2	0.6	75.8	2.7	78.6	3.4*
Small places	60.1	1.0	61.1	3.3*	64.4	4.3*	75.2	2.2*	77.4	1.4	78.8	3.6*
Grade												
3/7	48.5	1.6	50.1	5.7*	55.8	7.3*	70.2	1.3	71.5	1.6	73.1	2.9*
4/8	65.2	-0.5	64.7	3.9*	68.7	3.5*	79.5	0.3	79.8	1.1*	80.9	1.4*

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*
†This population group represents about one-third of the sample.

TABLE B-2. National and Group Mean Percentages of Correct Responses on 44 Exercises Administered to 13- and In-School 17-Year-Olds in Three Reading Assessments#

	Age 13						Age 17					
	1970	Change 1970-74	1974	Change 1974-79	1979	Change 1970-79	1971	Change 1971-75	1975	Change 1975-80	1980	Change 1971-80
Nation	55.0%	-0.2	54.8%	1.2	56.0%	1.0	68.6%	0.0	68.6%	-0.7	67.9%	-0.6
Region												
Northeast	56.8	-0.8	56.1	0.9	57.0	0.1	70.7	-0.7	70.0	-1.9	68.1	-2.6
Southeast	50.0	1.2	51.2	1.6	52.8	2.8	62.6	2.0	64.7	0.2	64.8	2.2
Central	57.9	-0.3	57.6	1.4	59.0	1.1	71.3	0.1	71.3	-1.2	70.2	-1.1
West	54.4	-0.8	53.6	1.2	54.8	0.4	67.7	-0.6	67.1	0.8	67.9	0.2
Sex												
Male	52.6	0.0	52.5	1.5	54.0	1.5	66.8	0.2	67.0	-0.2	66.8	-0.1
Female	57.4	-0.4	57.0	0.8	57.9	0.5	70.2	-0.1	70.1	-1.0	69.1	-1.1
Race/ethnicity												
White	57.6	-0.8	56.9	1.1	57.9	0.3	70.9	0.0	70.9	-0.6	70.3	-0.6
Black	40.2	0.4	40.7	3.7*	44.4	4.2*	51.3	0.2	51.5	-0.1	51.3	0.0
Parental education												
Not graduated high school	47.0	-0.2	46.8	0.8	47.6	0.6	60.2	-0.2	60.0	-0.8	59.1	-1.1
Graduated high school	55.2	-1.0	54.2	0.5	54.7	-0.5	68.0	-0.7	67.3	-2.2*	65.1	-2.9*
Post high school	61.6	-0.3	61.3	-0.3	61.0	-0.6	74.3	-0.2	74.1	-1.3*	72.8	-1.5*
Type of community†												
Rural	51.6	0.1	51.7	2.2	53.8	2.3	65.0	2.4	67.4	-2.2	65.2	0.2
Disadvantaged urban	44.0	-1.0	43.0	5.0	48.0	4.0	60.0	-0.9	59.2	-1.2	57.3	-2.1
Advantaged urban	62.0	0.3	62.3	1.7	64.1	2.1	75.4	0.6	76.0	-2.8	73.2	-2.2
Size of community												
Big cities	53.2	-3.7*	49.5	3.2	52.7	-0.5	67.0	-3.3*	63.7	0.0	63.7	-3.3
Fringes around big cities	58.8	0.2	59.0	-0.7	58.3	-0.5	71.8	-0.6	71.2	-0.8	70.4	-1.4
Medium cities	54.6	-1.0	53.7	2.0	55.6	1.0	69.7	-1.0	68.7	-0.2	68.6	-1.2
Small places	54.0	0.7	54.8	1.5	56.2	2.2*	67.2	1.7	68.8	-0.7	68.1	1.0
Grade												
7/10	44.9	0.6	45.5	2.7*	48.2	3.3*	53.8	0.8	54.5	0.0	54.5	0.8
8/11	59.6	-0.8	58.7	0.9	59.6	0.0	70.8	0.3	71.0	-1.0	70.1	-0.7
12							74.4	-0.7	73.7	-0.3	73.4	-1.0

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*
†This population group represents about one-third of the sample.

TABLE B-3. National and Group Mean Percentages of Correct Responses on 12 Exercises Administered to 9-, 13- and In-School 17-Year-Olds in Three Reading Assessments#

	Age 9						Age 13						Age 17					
	1971	Change 1971-75	1975	Change 1975-80	1980	Change 1971-80	1970	Change 1970-74	1974	Change 1974-79	1979	Change 1970-79	1971	Change 1971-75	1975	Change 1975-80	1980	Change 1971-80
Nation	30.2%	2.2*	32.4%	1.6*	34.0%	3.8*	58.1%	-0.8	57.3%	-0.3	57.0%	-1.1	68.2%	0.9	69.1%	-1.4	67.6%	-0.6
Region																		
Northeast	30.0	3.2*	33.2	2.6*	35.8	5.8*	60.4	-2.4	58.0	0.3	58.2	-2.1	70.3	-0.6	69.7	-3.2*	66.5	-3.7*
Southeast	28.0	3.1*	31.2	2.8*	34.0	6.0*	54.7	0.9	55.6	-0.1	55.6	0.8	63.3	3.9*	67.2	-1.5	65.7	2.4
Central	[illegible]	2.0	33.7	0.2	33.9	2.2	59.7	-0.2	59.4	-0.9	58.6	-1.1	69.4	1.6	70.9	-1.1	69.8	0.5
West	30.8	0.5	31.4	1.5	32.8	2.0	57.1	-1.4	55.7	-0.4	55.3	-1.8	68.6	-0.8	67.8	0.1	67.8	-0.7
Sex																		
Male	28.8	1.9*	30.7	2.3*	33.0	4.2*	55.5	-1.7*	53.7	0.4	54.2	-1.3	65.6	1.0	66.6	-1.0	65.6	0.0
Female	31.6	2.5*	34.1	0.9	35.0	3.4*	60.7	0.1	60.8	-1.2	59.6	-1.1	70.6	0.8	71.4	-1.8	69.7	-0.9
Race/ethnicity																		
White	31.4	2.1*	33.4	1.5*	34.9	3.6*	60.5	-1.4*	59.1	-0.3	58.8	-1.7	70.3	0.6	71.0	-1.4	69.6	-0.7
Black	23.8	2.0	25.8	2.7*	28.5	4.7*	43.5	1.5	45.0	0.8	45.8	2.3	52.6	2.1	54.6	-0.5	54.2	1.6
Parental education																		
Not graduated high school	27.1	2.3*	29.4	1.4	30.8	3.6*	50.8	-0.7	50.0	-0.7	49.4	-1.4	60.0	1.9	61.8	-3.5*	58.3	-1.6
Graduated high sch[illegible]	30.8	2.1*	32.9	0.5	33.5	2.7*	58.3	-1.5	56.8	-1.9*	54.9	-3.4*	66.6	1.0	67.6	-2.6*	65.0	-1.6
Post high school	35.2	0.9	36.1	1.4*	37.4	2.2*	65.3	-1.8*	63.5	-1.7	61.9	-3.4*	74.4	-0.3	74.1	-1.5*	72.6	-1.8
Type of community†																		
Rural	29.8	2.4	32.1	0.6	32.7	2.9	56.4	-1.6	54.8	-1.6	53.1	-3.2	67.6	0.5	68.1	-4.4*	63.8	-3.8
Disadvantaged urban	24.0	2.9	26.9	0.5	27.5	3.5*	48.8	-2.4	46.4	4.1	50.5	1.6	61.7	-1.4	60.3	0.0	60.3	-1.4
Advantaged urban	34.1	2.2	36.4	1.4	37.8	3.6	66.4	-3.0	63.4	1.4	64.8	-1.6	75.3	0.1	75.4	-2.8*	72.6	-2.7
Size of community																		
Big cities	28.9	0.9	29.7	2.3*	32.0	3.2*	57.5	-4.9*	52.6	0.6	53.2	-4.3*	67.4	-3.6	63.7	1.3	65.0	-2.3
Fringes around big cities	31.3	2.6*	33.9	2.0	36.0	4.6*	59.8	0.5	60.3	-0.9	59.4	-0.4	70.8	0.7	71.5	-1.3	70.1	-0.6
Medium cities	30.2	2.4	32.6	3.1	35.8	5.5*	58.0	-1.9	56.1	1.9	58.0	0.0	68.9	1.2	70.2	-2.9*	67.3	-1.7
Small places	30.3	2.3*	32.6	0.8	33.5	3.2*	57.5	-0.1	57.7	-0.9	56.8	-0.8	66.9	2.4*	69.3	-1.6	67.7	0.9
Grade																		
3/7/10	23.2	3.0*	26.2	1.0	27.1	3.9*	48.5	-0.3	48.2	0.6	48.8	0.3	54.5	0.4	54.9	-0.6	54.3	-0.3
4/8/11	32.6	1.7*	34.3	2.5*	36.9	4.2*	62.3	-1.3*	61.0	-0.3	60.7	-1.6	70.1	1.4*	71.5	-1.6*	69.9	-0.2
12													73.9	0.0	73.9	-2.7	71.2	-2.7

#Figures may not total due to rounding.
**Asterisk indicates significant change in performance between assessments.*
†This population group represents about one-third of the sample.

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APPENDIX C

EXHIBITS OF PERCENTAGES OF CORRECT RESPONSES BY COMMUNITY SIZE AND GRADE FOR THREE AGE GROUPS ACROSS THREE READING ASSESSMENTS

Abbreviations used on the following exhibits are:

BC = Big cities
F = Fringes around big cities
MC = Medium cities
SP = Small places

EXHIBIT C-1. National and Group Mean Percentages of Success for 9-Year-Olds on All Exercises and Reference Skills Exercises Assessed in 1971, 1975 and 1980

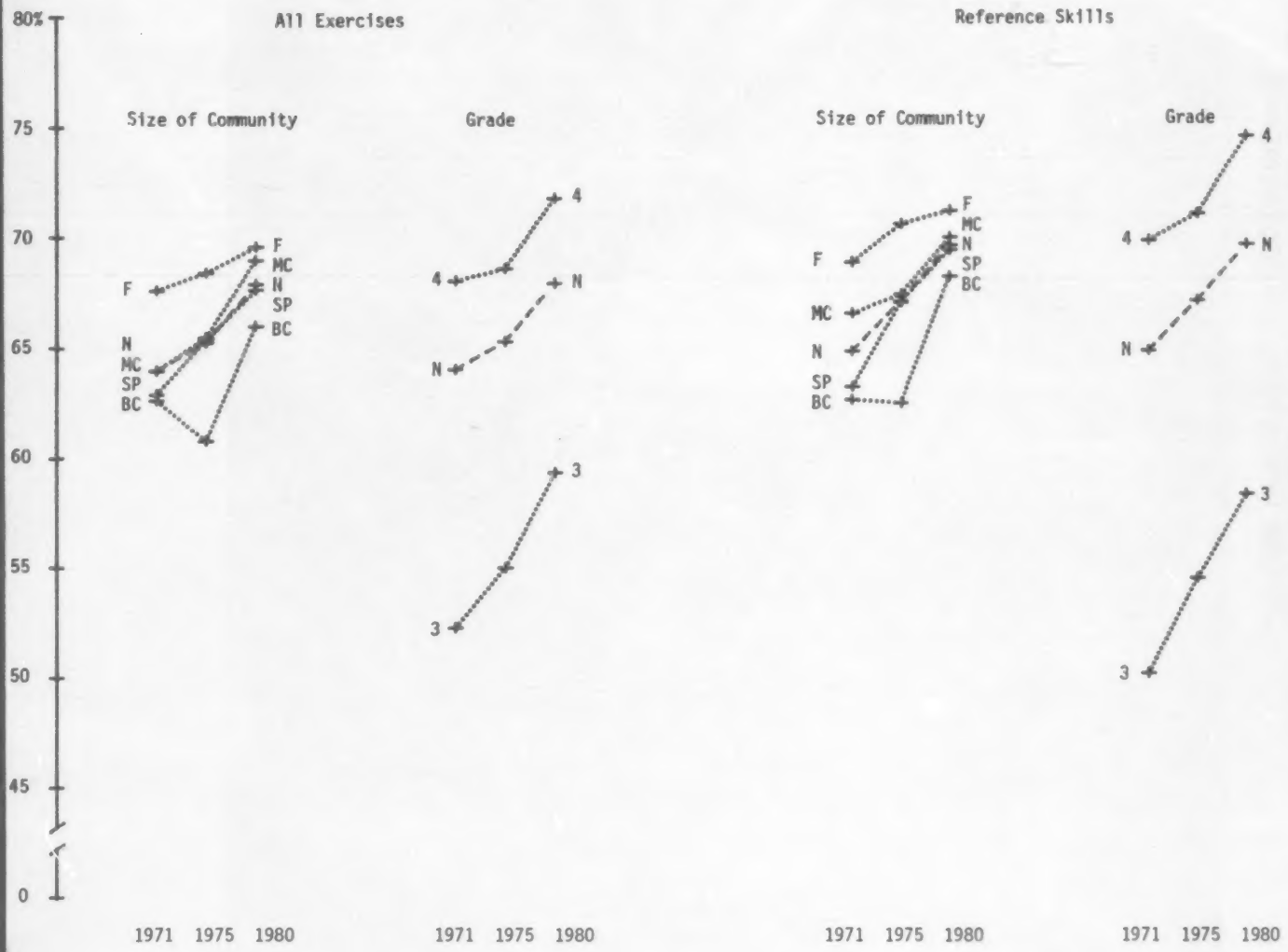


EXHIBIT C-2. National and Group Mean Percentages of Success for 9-Year-Olds on Literal and Inferential Comprehension Exercises Assessed in 1971, 1975 and 1980

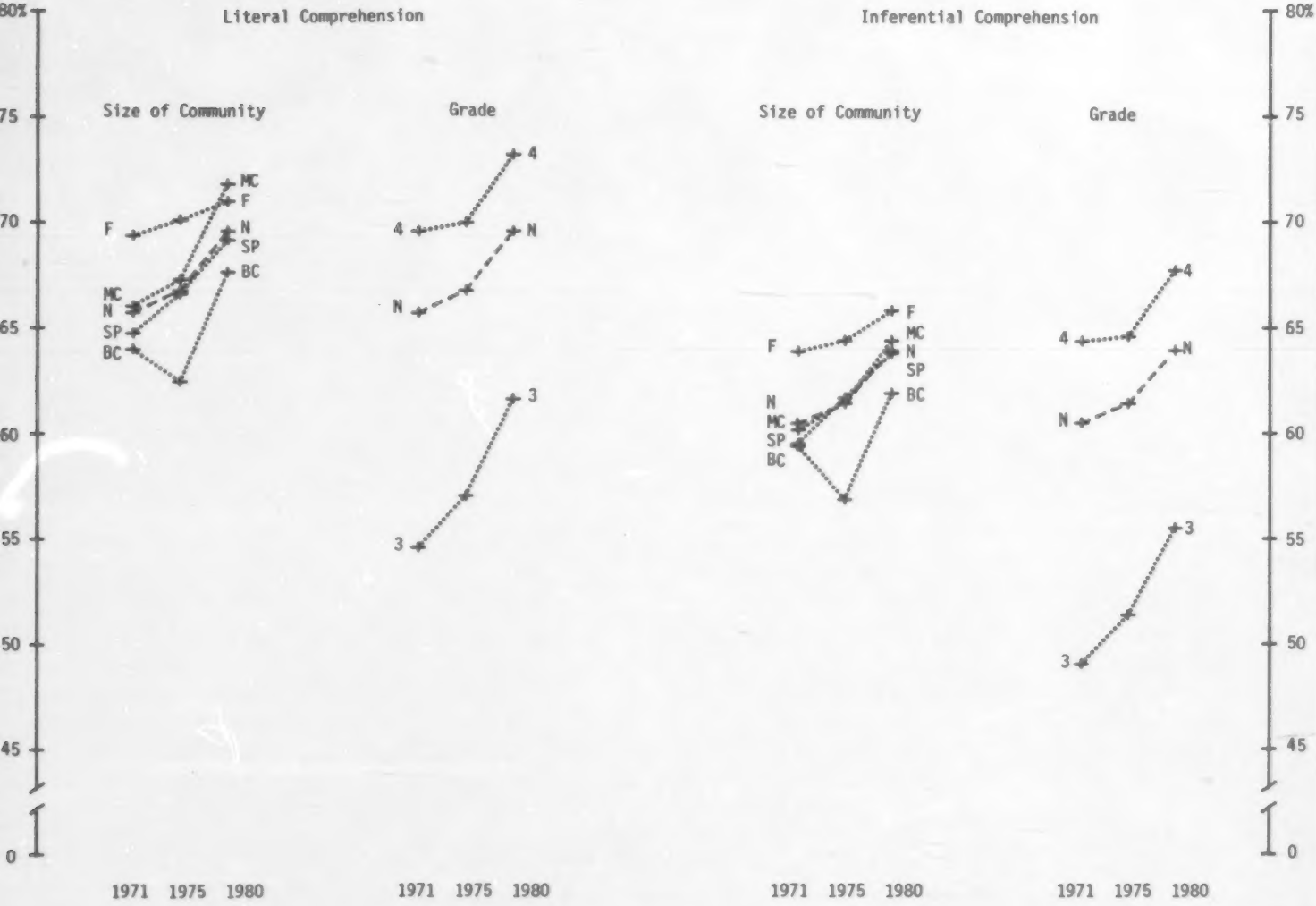


EXHIBIT C-3. National and Group Mean Percentages of Success for 13-Year-Olds on All Exercises and Reference Skills Exercises Assessed in 1970, 1974 and 1979

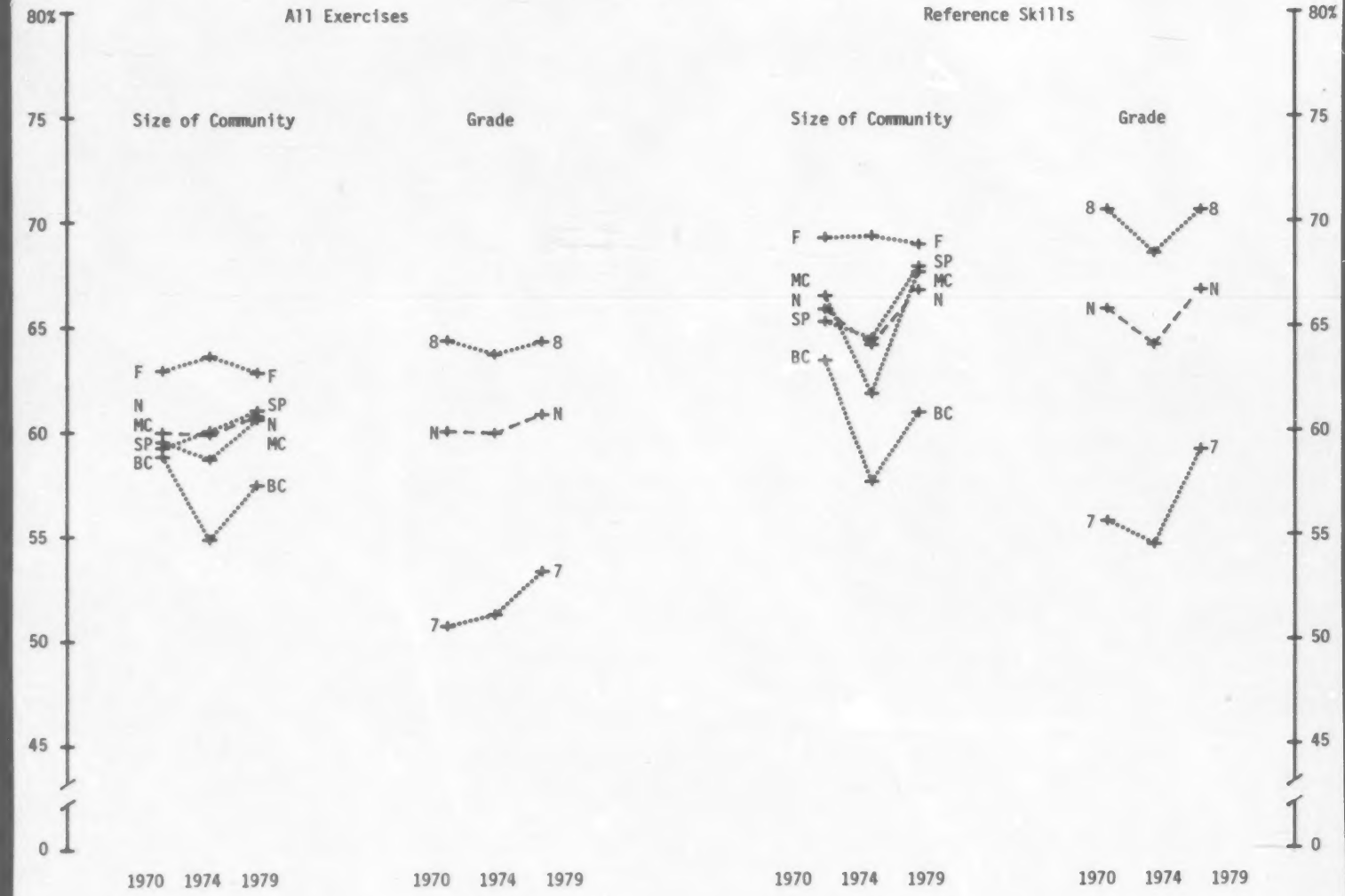


EXHIBIT C-4. National and Group Mean Percentages of Success for 13-Year-Olds on Literal and Inferential Comprehension Exercises Assessed in 1970, 1974 and 1979

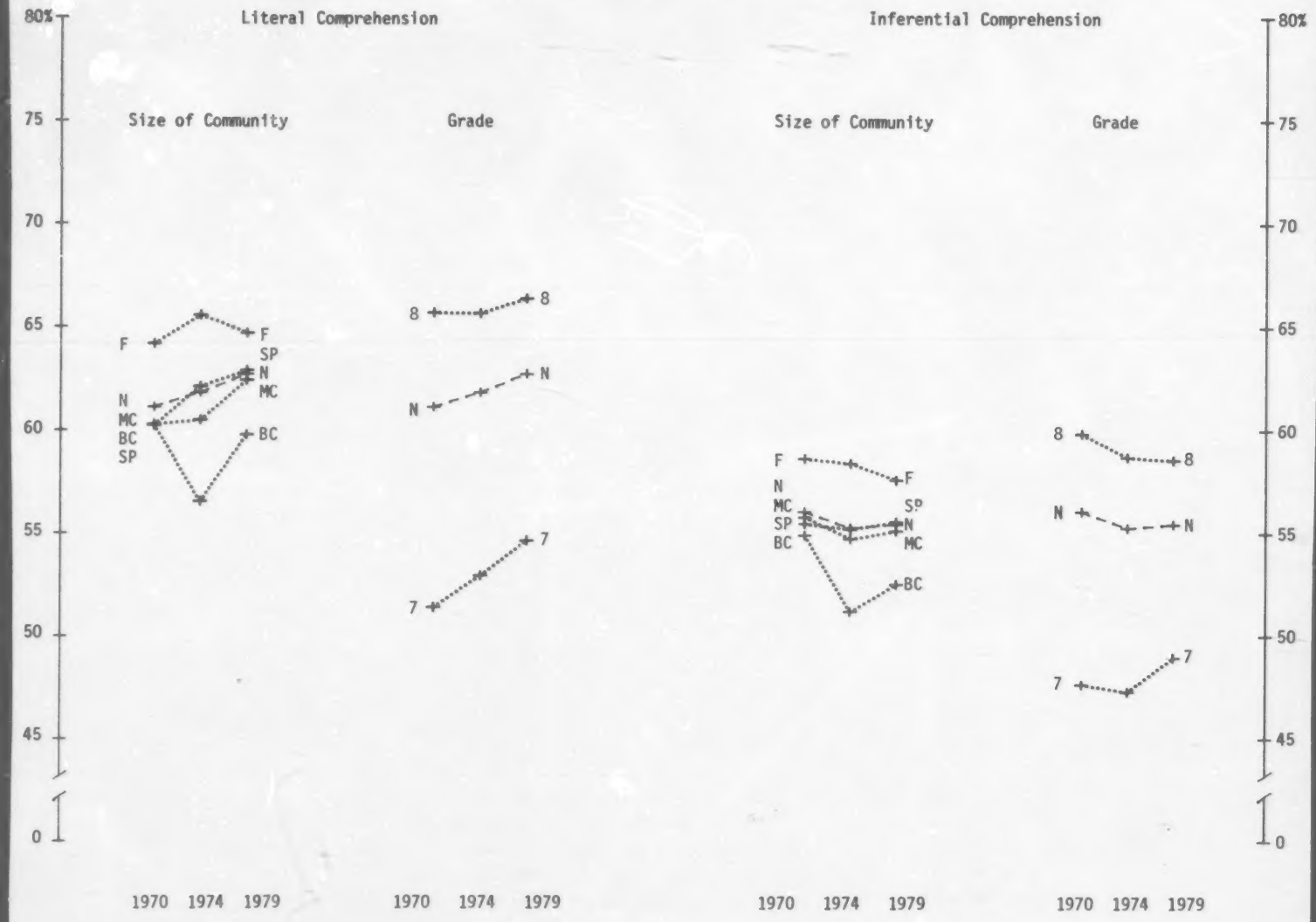


EXHIBIT C-5. National [illegible] Group Mean Percentages of Success for In-School 17-Year-Olds on All Exercises and Reference Skills Exercises Assessed in 1971, 1975 and 1980

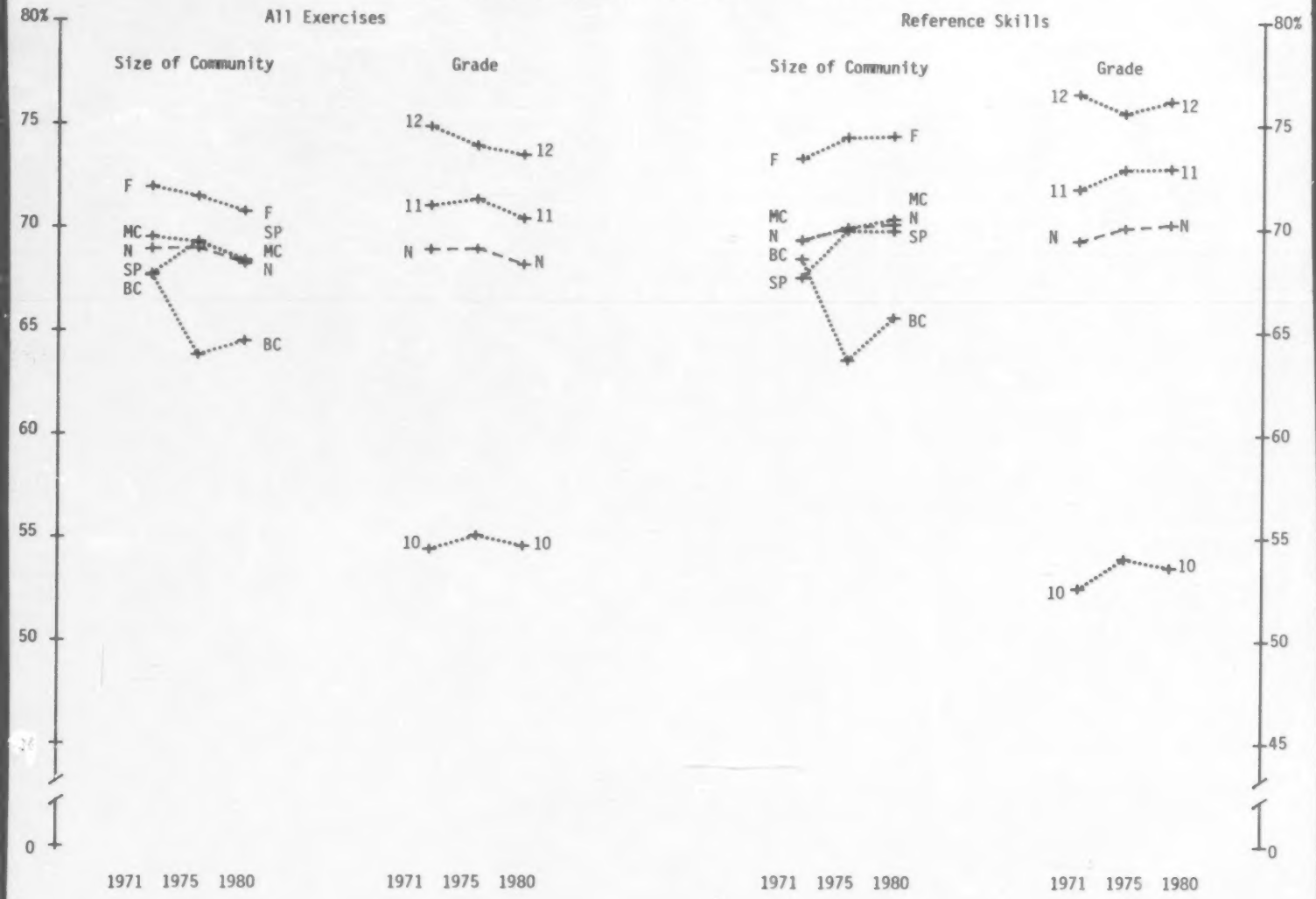
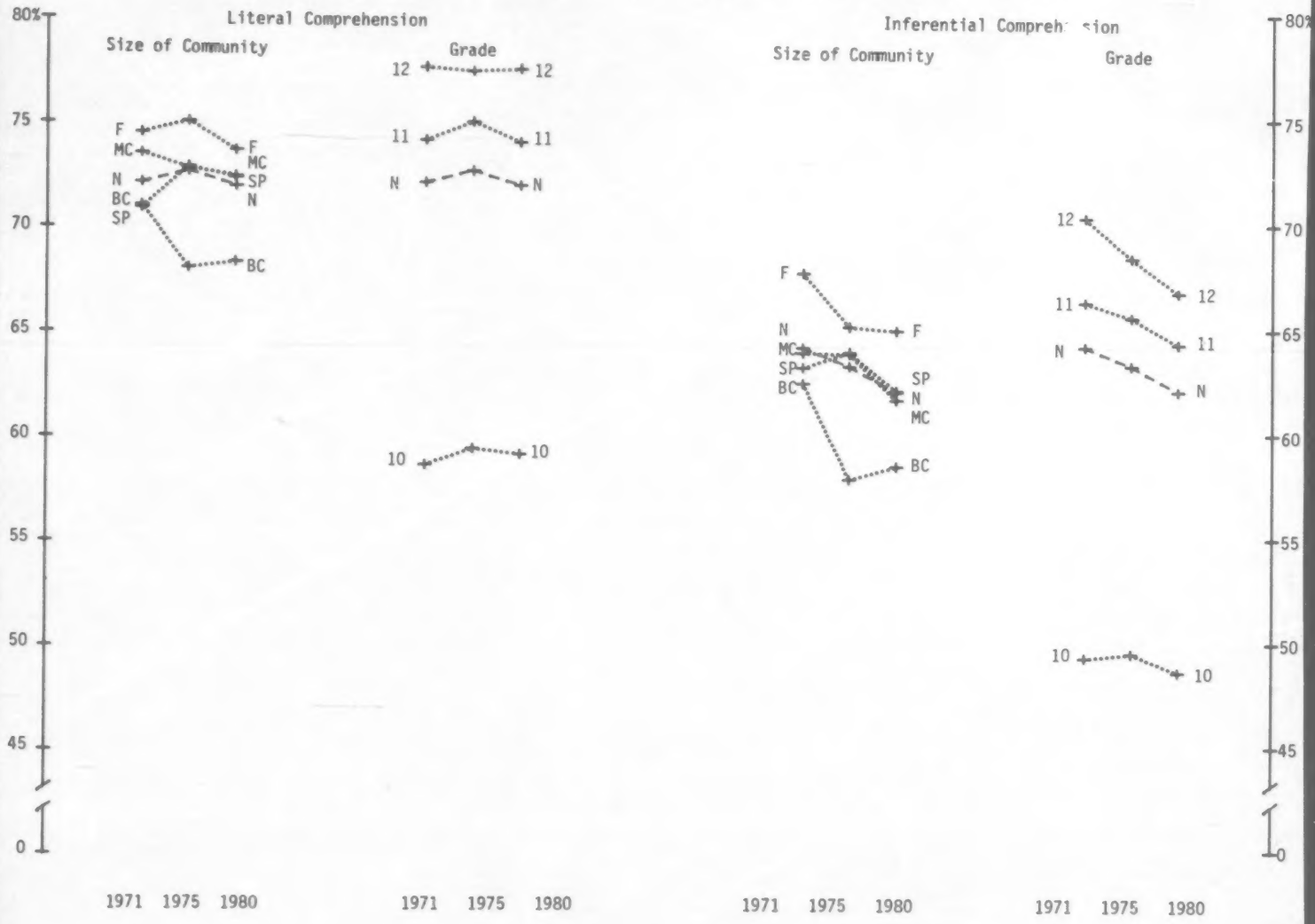


EXHIBIT C-6. National and Group Mean Percentages of Success for In-School 17-Year-Olds on Literal and Inferential Comprehension Exercises Assessed in 1971, 1975 and 1980



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